ANNUAL REPORT

OF THE

PUBLIC PRINTER

1926

GOVERNMENT PRINTING OFFICE
WASHINGTON
D. C.

GOVERNMENT PRINTING OFFICE

Public Printer.—GEORGE H. CARTER, Iowa

Deputy Public Printer.—John Greene, Massachusetts.
Production Manager.—Ellwood S. Moorhead, Pennsylvania.
Assistant to Public Printer.—Miss Mary A. Tate, Tennessee.
Chief Clerk.—Henry H. Wright, New York.
Assistant Chief Clerk.—J. Thomas Ford, New York.
Superintendent of Accounts and Budget Officer.—James K. Wallace, Ohio.
Assistant Superintendent of Accounts.—Frank E. Buckland, Indiana.
Purchasing Agent.—Ernest E. Emerson, Maryland.
Assistant Purchasing Agent.—William J. Cassiday, District of Columbia.
Superintendent of Documents.—Alton P. Tisdel, Ohio.
Assistant Superintendent of Documents.—Miss Josephine G. Adams, District of Columbia.
Superintendent of Planning.—William A. Mitchell, North Carolina.
Assistant Superintendent of Planning.—Robert W. Summers, New York.
Storekeeper and Traffic Manager.—William H. Kervin, New York.
Assistant Storekeeper.—George Lamb, Pennsylvania.
Medical and Sanitary Officer.—Dr. Daniel P. Bush, Nebraska.
Assistant Medical and Sanitary Officer.—Dr. John F. Atkinson, Indiana.
Chief of Tests.—Edward O. Reed, District of Columbia.
Disbursing Clerk.—Edward J. Wilver, Pennsylvania.
Instructor of Apprentices.—Burr G. Williams, Iowa.
Congressional Record Clerk.—William A. Smith, District of Columbia.
Superintendent of Printing.—Henry W. Weber, Indiana.
Assistant Superintendent of Printing.—Maurice H. Phillips, Ohio.
Foreman Linotype Section.—William D. Skeen, Pennsylvania.
Foreman Monotype Section.—William H. Chase, Maryland.
Foreman Proof Section.—Marion E. Bullock, Maryland.
Foreman Hand Section.—Hugh Reid, Wisconsin.
Foreman Job Section.—Allan C. Clough, New Hampshire.
Foreman Patents Section.—Charles Garrels, Illinois.
Foreman Library Printing Branch.—James H. Heslet, Kansas.
Chief Type Machinist.—Daniel L. Liddle, Michigan.
Superintendent of Presswork.—Bert E. Bair, Michigan.
Assistant Superintendent of Presswork.—Daniel Beckwith, New Hampshire.
Foreman Main Pressroom.—Daniel I. Leane, New York.
Foreman Job Pressroom.—James E. Veatch, New York.
Foreman Postal Card Section.—Joseph A. Fenton, Michigan.
Foreman Money Order Section.—John A. Massey, Jr., Georgia.
Superintendent of Binding.—Martin R. Speelman, Missouri.
Assistant Superintendent of Binding.—John A. Patterson, New York.
Foreman Pamphlet Binding Section.—Charles J. Orem, Maryland.
Foreman Ruling and Sewing Section.—Walter H. Oliver, Maine.
Foreman Library Binding Branch.—Charles F. Weston, Massachusetts.
Superintendent of Platemaking.—Edward G. Whall, Massachusetts.
Assistant Superintendent of Platemaking.—Edward A. Kerr, Massachusetts.
Foreman Molding Section.—James H. Babcock, Jr., Rhode Island.
Foreman Photo-engraving Section.—William H. Meyer, Maryland.
Night Assistant Production Manager.—Edward A. Huse, Massachusetts.
Assistant Superintendent Presswork, night.—John D. Meyers, Ohio.
Foreman Monotype Section, night.—William A. Morris, Missouri.
Foreman Linotype Section, night.—Harry L. Murray, Pennsylvania.
Foreman Proof Section, night.—Hermann B. Barnhart, Indiana.
Foreman Hand Section, night.—George O. Atkinson, Massachusetts.
Superintendent of Construction and Maintenance.—Alfred E. Hanson, Massachusetts.
Chief Draftsman.—Henry A. Ludwig, Maryland.
Chief Carpenter.—Abraam B. Batton, Maryland.
Chief Machinist.—Michael J. McInerney, New York.
Chief Electrician.—Edward H. Brian, District of Columbia.
Chief Engineer.—Walter A. Browne, New Hampshire.
Chief Pipefitter.—Ovilup H. George, New York.
Construction Foreman.—Daniel W. Bruce, District of Columbia.
Foreman Sanitary Section.—Joseph L. May, Virginia.
Chief of Delivery.—Walter G. Copp, District of Columbia.
Captain of Guards.—Charles H. Warner, District of Columbia.

ANNUAL REPORT OF THE PUBLIC PRINTER

GOVERNMENT PRINTING OFFICE,
OFFICE OF THE PUBLIC PRINTER,
Washington, D. C., December 31, 1926.

To the Congress of the United States:

In compliance with law I have the honor to submit the following report of the work of the Government Printing Office for the fiscal year ended June 30, 1926, and also for the last half of the calendar year 1926.

On March 4, 1926, the Government Printing Office completed 65 years of continuous service as an independent establishment of the Government. Therefore it seems fitting to begin this report with a brief comparison of the present establishment with the plant purchased by Congress on March 4, 1861.

The Government Printing Office was operated during the Civil War under the direction of John D. Defrees, whom President Lincoln appointed as its first superintendent. The building acquired at that time had 59,292 square feet of floor space, as compared with 750,175 square feet in the present buildings. The original building, equipment, and materials cost the Government $135,000. The present buildings, equipment, and materials are valued at fully $8,000,000.

COMPARISON WITH CIVIL WAR-TIME OFFICE

During the Civil War the Government Printing Office had 350 employees. The number has now increased to 4,100, and during the World War there were 5,307 employees on the rolls. Wages and salaries paid to employees in 1861 amounted to approximately $170,000, while the pay roll for 1926 was about $7,660,000. The average wage for Government printers in 1861 was $14 a week, while to-day their weekly earnings are four times as much, with considerably shorter hours of work and vastly better conditions of employment.

In 1861 the office had 26 printing presses, including only 3 cylinder presses. To-day, 180 presses are in operation, and of this number 30 are web and 104 cylinder presses. Two new presses recently installed to print the Congressional Record cost almost as much as was paid for the entire Government Printing Office in 1861.

All of the type was set by hand compositors during the Civil War, while to-day 377 composing machines, including keyboards and casters, produce nearly 7,000,000 ems of type daily to supply the Government with printing. The bindery in 1861 was equipped with

four minor machines, while to-day 326 machines are used in the work of the bindery alone. Some of these machines cost more each than the entire amount paid for all the machinery in the Government Printing Office 65 years ago.

Only one 60-horsepower boiler was required to operate and heat the Government Printing Office in 1861, as compared with 1,500 horsepower now necessary to furnish steam heat and electric power and light. A two-horse wagon delivered all the product of the office in those days, and now 30 big motor trucks are kept busy transporting the daily output.

The total expenditures of the Government Printing Office in 1861 amounted to less than half a million dollars as compared with an expenditure of nearly $12,000,000 in 1926.

Such has been the tremendous growth of the Government Printing Office in 65 years, until to-day it has become the greatest printing establishment in the world. Even now its capacity and equipment are not sufficient to meet the rapidly increasing requirements of the United States Government. With the approval of Congress, plans are being prepared for an addition which will increase the floor space of the main building by about 160,000 square feet and cost approximately $1,250,000. It is hoped to complete this much-needed structure within the next two years.

CELEBRATION OF SIXTY-FIFTH ANNIVERSARY

The sixty-fifth anniversary of the Government Printing Office was fittingly celebrated in Harding Hall on March 4, 1926, at which time congratulatory addresses were delivered by Senator George H. Moses, chairman of the Joint Committee on Printing; Senator George Wharton Pepper, chairman of the Senate Committee on Printing; and Representative Edward M. Beers, chairman of the House Committee on Printing, of Congress. There were also present at the exercises, as guests of honor, Mrs. James A. Sample and Maj. Thomas Defrees, of Washington, the daughter and the son of Hon. John D. Defrees, who was the first superintendent of the Government Printing Office. Sharing with them the honors of the occasion were the following employees, each of whom has had more than fifty years of service in the Government Printing Office: John S. Burnside, William A. Smith, Miss Amelia Moreno, and Miss Mary E. Speisser.

President Coolidge, in a letter congratulating the Government Printing Office on its sixty-fifth anniversary, wrote the Public Printer as follows:

THE WHITE HOUSE,
Washington, February 23, 1926.

MY DEAR MR. CARTER: * * * Starting in a small way in the administration of President Lincoln, your office has come to be one of the important factors in the quick dispatch of Government business. It is said to be not only one of the largest plants of its kind in the world but also one of the most efficient. Its personnel may well be proud to maintain that record.

Please extend to them my greetings and best wishes.

Most sincerely yours,

CALVIN COOLIDGE.

EFFICIENCY INCREASED IN LAST SIX YEARS

In view of the tremendous growth of the Government Printing Office during the 65 years, it is gratifying to report that in the last six years the efficiency of employees has increased and the improvement of equipment has been greater than during any similar period of its history. The value of the product for the six-year period, 1921–1926, was computed at $66,181,938.80, as compared with $58,161,481.47 for the six years 1915–1920, the greatest production record up to that time, including, as it did, the vast amount of extra work required during the World War. This increase of more than $8,000,000 in the product was made with an average of 340 fewer employees than were on the rolls during the six years 1915–1920. Further evidence of the greater efficiency of the employees during the last six years is furnished by the notable record of the typesetting machine operators, whose hourly production averages increased from 3,782 ems for linotype operators and 4,835 ems for monotype keyboard operators in 1921 to 4,559 and 6,265 ems, respectively, for the fiscal year ended June 30, 1926. For the last six months of 1926 the linotype average was 4,802 ems per hour and the monotype average 7,998 ems per hour.

Besides increasing efficiency, the office also operated with greater economy during the last six years than ever before. Proof of this statement is shown in the unexpended balances, amounting to $5,344,969.31, which were left in the Treasury out of the total resources of $75,553,759.81 available for expenditure by the Public Printer during the fiscal years 1921–1926. This saving of 7 per cent of the funds credited to the office was accomplished nothwithstanding an increase of $1,680,000 in the annual wage rolls and the expenditure of large sums for improved machinery and essential alterations which were greatly needed to modernize the plant and increase its production.

In addition to the unexpended balance of $5,344,969.31, the Public Printer, during the fiscal years 1921–1926, has deposited in the Treasury the sum of $1,691,083.57, received from miscellaneous sources, such as surplus from the sale of public documents, waste paper, useless material, and obsolete equipment. Thus the Treasury gained $7,036,052.88 from the savings and the receipts of the Government Printing Office during the last six years.

MEMBER OF PRESIDENT'S SAVINGS CLUB

The administration's program of rigid economy was faithfully followed throughout the fiscal year 1926, and the Government Printing Office again qualified for membership in the President's "savings club," as it also did in the preceding fiscal year. The unobligated balances of all appropriations for 1926 totaled $486,165.14.

The reserve pledged to the Bureau of the Budget at the beginning of the fiscal year was maintained and additional savings made in other available appropriations. These savings have come from the more efficient operation of the plant in all its branches, the adoption of better methods of handling the work, the installation of more

improved machinery, and, above all else, the whole-hearted cooperation of the most loyal and industrious organization of employees ever maintained in the Government Printing Office.

Economies for the year, amounting to approximately $230,000, are set forth in the accompanying reports of several of the principal officers of the Government Printing Office. Along with these savings by the work divisions, the financial transactions of the office have been handled in a most efficient manner by the accounts and purchase divisions. The careful preparation of the pay rolls and supervision of expenditures for machinery and materials enabled the office to have its complicated accounts, totaling more than $12,000,000 annually, approved by the Comptroller General with disallowances of only $24.16 for the fiscal year 1926, and $167.56 for the fiscal year 1925, which were due to minor mistakes that have since been corrected.

This is a remarkably clear record in view of the fact that the accounts division has to prepare more than 100,000 pay-roll accounts with numerous rates of wages annually and that the purchase division has to place thousands of orders for material and machinery each year. The accounts division also made an excellent showing in the collection of all but about $3,000 of the $9,642,000 due the office for repay work delivered during the year. Careful watching of purchases and prompt payment of bills netted the office $2,405.47 in discounts taken during the year.

CHANGES IN OFFICE APPROPRIATIONS

In the last five years, on recommendation of the Public Printer, Congress has made a number of vital and important changes in the appropriations for this office and the law governing its financial operations that have greatly simplified and made more businesslike the handling of the funds and accounts of the Government Printing Office. The most important of these changes was the making of printing and binding appropriations direct to the separate departments and establishments of the Government and the restriction of the Government Printing Office appropriation to a working capital available only for printing for Congress, the Government Printing Office, and Architect of the Capitol. This new plan superseded the old system of allotments to the departments out of the Government Printing Office appropriation.

Another change in the Government Printing Office appropriations was the consolidation of the separate items for employees' leave and holiday pay with the appropriation for the general expenses of the office, thus uniting all the funds for printing and binding and ending the annoyance of annual deficiency appropriations for leave and holiday pay when at the same time there was a surplus in the general expense appropriations. The appropriations which had been made separately for employees in the offices of the Public Printer and the Deputy Public Printer have also been consolidated in one item.

To simplify further and complete the rearrangement of the appropriations in accordance with the new wage law, the Budget for 1928 proposes to make one single appropriation item for the Government

Printing Office, one for salaries and wages and one for general expenses under the office of the Superintendent of Documents. The following explanation of the proposed change is quoted from the Budget for 1928 (pp. 22 and 26):

BUDGET PROPOSES SINGLE APPROPRIATION

It is recommended that the appropriation "Salaries, office of the Public Printer," be discontinued as a separate appropriation, and a portion of the sum heretofore annually appropriated under that heading be added to and combined with the appropriation for "Public printing and binding, Government Printing Office." The reasons are as follows:

The Kiess Act to regulate and fix rates of pay for employees and officers of the Government Printing Office, approved June 7, 1924 (Stat. L. 43, p. 658), after passing in the House was amended in the Senate so as to clearly state that the *salaries and wages of all officers and employees* in the Government Printing Office were to be governed thereby, and the language of the act beyond question included the salaried employees who happened to be appropriated for under "Office of the Public Printer" and "Office of the Superintendent of Documents." The Comptroller General, however, has held that inasmuch as those two appropriations carried a reference to the classification act, said act, and not the Kiess Act, must apply.

The salaries paid under the office of the Public Printer are a definite and inseparable part of printing and binding costs and are included in the charges made to departments. The work performed by the employees paid from said appropriation is closely connected and comparable in every way with the work of a much larger number of employees who are paid out of the appropriation for "Public printing and binding." There seems no longer to be any good reason for two separate appropriations covering identical work in the Government Printing Office, and especially so when the total expense under the two appropriations is ultimately applied to one object, i. e., the cost of printing and binding for the Government. To carry all such expense under one appropriation would be an economy and a more businesslike arrangement. It is therefore recommended that the total amount now appropriated under the two appropriations combined be reduced by $56,453, provided the combination of the two appropriations is made.

* * * * * * *

It is recommended that the employees under the office of the Superintendent of Documents be included under the operation of the act to regulate and fix rates of pay for employees and officers of the Government Printing Office, approved June 7, 1924, for reasons stated in note under "Public printing and binding." The close connection between production and distribution in the Government Printing Office makes it very advisable that wage adjustments under the Superintendent of Documents be made in the same manner as those which have been made under authority of law to the personnel under "Public printing and binding." It is estimated the necessary changes will require approximately $38,000 additional over the present appropriation. This increase is more than absorbed by the recommended reduction made in other appropriations made under the Government Printing Office.

EMPLOYEES UNDER CLASSIFICATION ACT

Only 360 of the 4,100 employees of the Government Printing Office now have their rates of pay determined according to the classification act of 1923. All the others are subject to the Kiess wage law of 1924, which, the Comptroller General has held, supersedes the classification act except as to the comparatively few employees included in the separate appropriation items. Therefore, in order to relieve the present discrimination in the pay of employees under the classification act as compared with those under the Kiess Act, it is proposed to

have the pay of the entire force determined as provided by Congress in the Kiess law of 1924, entitled "An act to regulate and fix rates of pay for employees and officers of the Government Printing Office."

The Budget estimates also propose specific increases in the salary of the Public Printer from $7,500 to $10,000 and of the Deputy Public Printer from $5,000 to $7,000 per annum. The following explanation of these recommendations is quoted from the Budget for 1928 (p. 22):

> The present salary of the Public Printer is $7.500 and of the Deputy Public Printer $5,000. The request for increase of $2,500 for the Public Printer and $2,000 for the Deputy Public Printer is fully justified by comparison with the present compensation paid a large number of commissioners and heads of independent establishments, ranging from $10,000 to $12,000 a year. It is submitted that the administration of the Government Printing Office requires specialized knowledge, experience, and executive ability, and carries responsibilities fully comparable with any of these positions. Further, there are numerous cases in the commercial field where administrative officers in printing and binding plants are paid from $10,000 to $25,000 a year, some receiving in addition a substantial bonus, and none of the establishments concerned do a variety or volume of business comparable with that required of the Government Printing Office. H. R. 9459, Sixty-ninth Congress, first session, carrying the proposed salaries of $10,000 and $7,000, respectively, was favorably reported and is now on the House Calendar.

LEAVE PAY RATES FOR EMPLOYEES

The attention of Congress is invited again to the recommendation in the Public Printer's Report for 1925 that employees be allowed leave pay at their rate at the time leave is granted instead of having leave pay based on their earnings for the preceding fiscal year.

This would greatly simplify the handling of leave accounts and effect a saving of several thousand dollars annually in the bookkeeping now required by the complicated leave rates. It would also materially benefit employees whenever their wages are increased during the year in which they are granted leave. In fact, if the provision as proposed by the Public Printer had been in effect the past year, employees would have received approximately $45,000 more leave pay than was allowed under the present law.

About 250 employees who have their annual salaries fixed by the classification act are granted leave at their current rates of pay, but all other employees must take their leave according to the law which bases the rate of leave pay on their earnings for the preceding fiscal year. The proposed change would conform to the practice in all other branches of the Government service granting employees leave at their current rate of pay. There is no good reason to continue the present discrimination against the per hour employees of the Government Printing Office.

The computed product of the office for the fiscal year 1926 reached a total of $12,599,074.87, including labor and material for uncompleted jobs amounting to approximately $800,000. This was a gain of $266,120 over the preceding year, which is a great achievement, inasmuch as the production for that year had made a remarkable record with a total of $2,253,033.29 more than for the fiscal year 1924.

The increased work in the fiscal year 1926 was done with an average of 116 fewer employees than in 1925; in fact, the average of

3,985 employees on the rolls during the fiscal year 1926 was the lowest yearly average maintained for the last 10 years. The increased output for 1926 was accomplished with 48,225 fewer hours of overtime, Sunday, and holiday work than in the fiscal year 1925, reducing the extra-time expenditures for the year by $19,760.08.

CONGRESS THE LARGEST CUSTOMER

Congress has again become the largest customer of the Government Printing Office, after having taken second place to the Post Office Department for several years. Printing and binding charged to Congress during the fiscal year 1926 amounted to $2,157,460.06, in addition to which Members of Congress paid the Public Printer the sum of $80,922.65 on personal orders for the printing of separate copies of their speeches and $11,127.90 for copies of documents and bills. The cost of printing for Congress last year increased $303,730.90 over the charges for the preceding year.

More printing and binding was done for the first session of the Sixty-ninth Congress (December 7, 1925–July 3, 1926) than for any prior first session of a Congress. In fact, the work for this single session exceeded the requirements on the Government Printing Office by many preceding entire Congresses. The daily Congressional Record and index for the seven months of the first session of the Sixty-ninth Congress filled 15,192 printed pages, which exceeded the high mark previously made by the first session of the Sixty-fourth Congress for 10 months.

The 176 issues of the daily Record for the first session of the Sixty-ninth Congress averaged 79 printed pages each day, which was by far the largest average ever maintained by any Congress throughout an entire session. Twenty-three issues of the daily Record during the session consisted of more than 100 pages each, and six of this number exceeded 130 pages each, the largest single issue filling 160 pages. In addition to the daily copies, 14 semimonthly indexes of the daily Record were printed during the session. These indexes contained 1,261 pages, the first index alone having 262 pages. Approximately 35,000 copies are printed of each issue of the daily Record.

DAILY RECORD PRINTED PROMPTLY

Notwithstanding the large size of the daily Record, the unusual quantity of tabular matter included in the proceedings, and the numerous night sessions of Congress, the Government Printing Office failed only eight times in the seven months of the session to complete printing and mailing the entire edition by 8 o'clock the next morning. Every copy for distribution in Washington was delivered before that hour, the few delays being in mailing only the out-of-town copies when late sessions, large Records, or press accidents necessitated a few extra hours of work.

This record for expeditious printing of the daily Record has never been equaled before in the history of the Government Printing Office and could not be accomplished by any other printing establishment

in the world. It was made possible for the first time last session by the installation of two new web presses, each having a capacity of 64 pages, which, with the three old Record presses, equip the office to print a 256-page Record at any time.

The maximum capacity of all the typesetting machines, printing presses, and bindery equipment of the Government Printing Office has never been put to an extreme test, but a careful estimate sustains the statement that by using all available employees and machines a complete copy of the Holy Bible, including both the Old and New Testaments, could be set up, printed, and bound in 24 hours. The setting of 3,431,000 ems of type required to print the Bible could be done in six hours, the remainder of the day being used for presswork and binding. At least 1,000 copies, sewed and bound in cloth, could be delivered in 40 hours after the typesetting started.

PAPER FOR CONGRESSIONAL PRINTING

Two million three hundred thousand pounds of paper were used in printing the daily issues of the Record for the first session of the Sixty-ninth Congress. From the 2,900 rolls of this paper a white web 48 inches wide and 9,308 miles long weaved between the fast-turning cylinders of the big presses to produce the required number of copies of the Record. If this quantity of paper were cut into a strip the width of a Record page, it would make a band 37,232 miles in length, or enough to encircle the earth at the Equator and lap more than half around again. To print the daily Record on the big web presses required 21,049 stereotype plates, for which 147,343 pounds of metal were used last session.

However, printing the daily edition is only part of the job of publishing the Congressional Record. Every page of the daily edition has to be rearranged for the permanent bound edition, replated, reprinted, gathered, and sewed in cloth-bound volumes after the proceedings of each session of Congress have been completed. The permanent Record for the first session of the Sixty-ninth Congress fills 12 volumes of approximately 1,100 pages each, and 4,830 sets of these volumes were bound for Members of Congress.

The cost of printing and binding the daily and permanent editions of the Record for the first session of the Sixty-ninth Congress was $715,456.79.

In addition to printing the Congressional Record for official distribution, the Public Printer received orders from Members of Congress last year for 20,691,170 copies of their speeches in pamphlet form. Members of Congress pay the cost of reprinting their speeches out of their personal funds, but the franked envelopes in which the speeches are mailed are charged to Congress. Congressional franked envelopes so furnished last year cost approximately $33,000.

NUMBER OF BILLS BREAKS RECORD

More bills and resolutions were introduced in the first session of the Sixty-ninth Congress than were submitted to any other Congress, the number for the session being 18,885 separate bills, with a total

of 99,412 printed pages, an increase of 67,387 pages over the preceding year. These bills vary in size from a single page to many of several hundred pages each. One bill, the new Code of Laws, made a volume of 1,718 pages.

Numerous reprints are made of bills as they progress through Congress—as introduced, as reported, as passed by either House, as considered in conference, and as enacted into law. From the fact that 400 to 1,000 or more copies of a bill are printed on each change of its status, some idea may be had of the enormous presswork in the printing and reprinting of the 18,885 bills and resolutions presented for consideration at the last session of Congress.

In the printing and reprinting of bills, resolutions, and amendments, a total of 11,561,210 copies were printed during the year at a cost of $437,619.73.

The nearest approach to this high-water mark for bills and resolutions was in the first session of the Sixty-sixth Congress, when 15,244 bills and resolutions were introduced.

An innovation was started with the Sixty-ninth Congress in the printing of many bills in advance of the session. With the cooperation of the Clerk of the House, 2,734 bills were put in type and printed during the week before the meeting of Congress. From November 30 to December 22, 1925, a total of 9,276 bills were printed, setting a new record in handling this work for Congress. One night during that period 204 bills were sent to press.

MORE LAWS THAN ANY OTHER CONGRESS

The first session of the Sixty-ninth Congress made a record also in the number of bills which it enacted into law. During the session 896 laws were passed by Congress and became effective with the approval of the President. Among this number were five omnibus pension bills into which 2,717 individual pension bills had been consolidated, so that the Congress has to its credit the enactment of a total of 3,613 out of 18,885 bills during a session of seven months.

The industry of this one session exceeds the record of any entire Congress for the last 20 years except the Sixty-seventh and Sixty-eighth Congresses, and these Congresses succeeded in passing only 35 and 100 more bills, respectively, in two years than the first session of the Sixty-ninth Congress enacted in seven months.

In the consideration of these bills the committees of Congress had 56,794 pages of hearings set in type, and an average of 1,000 copies of each hearing was printed. In all, 496 separate hearings were printed for committees during the session. The hearings on appropriation bills alone made 11,310 pages, of which 90,480 proofs were submitted to the committees before the completed hearings were printed. The House committee hearings on the Northern Pacific land grants fill 5,439 printed pages, and the hearings on senatorial campaign expenses make 3,100 pages up to date.

The printing of calendars of bills pending before the committees of each House is another heavy burden which the legislative body places on this office. These calendars have to be revised and reprinted in time for the committee meetings and the daily sessions of the

House and the Senate. For the first session of the Sixty-ninth Congress 17,501 pages of calendars were sent to press. At the close of the session there were in type 845 pages of the calendars, the House Calendar heading the list with 160 pages.

Committees of Congress added further to the work of this office in the printing of 2,796 reports during the session, by far the largest number for any session in the last 10 years. One night the record number of 55 reports was printed for delivery to Congress the next day. The reports for the session contained a total of 13,596 pages.

In addition, there were printed for Congress during the session 630 documents varying from small pamphlets to bound books of several hundred pages each, making in all a total of 7,684 printed pages.

CODE OF LAWS OF THE UNITED STATES

Included in this record-breaking amount of work for Congress was the printing of the new Code of Laws of the United States. The entire volume of 1,718 pages was set up, proof read, revised, printed, and bound in 17 days after the Committee on the Revision of the Laws had ordered the code printed in its new form for consideration by Congress.

Instead of following the usual style of 14-point type for bills, the text of the code, as submitted to Congress, was set in 8-point type leaded, and made up two columns to the page, which avoided resetting and changing the form of the code for its final printing as a law. If the code had been printed in regular bill form with the customary 14-point type, it would have made 13,720 pages of bill size. In the new form and type, adopted on the suggestion of this office, the code was reduced from thirteen to a single volume of 1,718 quarto-size pages. As submitted to Congress for enactment the code cost only $16,363.05, compared with $186,584.36 which would have been the expense of printing the code in the usual form of congressional bills.

Congress also accepted the suggestion of the Public Printer to avoid useless reprints of the code bill at the various stages of its consideration by the House and the Senate and to provide instead a special distribution of the code as finally enacted into law. These economies added approximately $25,000 to the saving effected by printing the code in the form adopted by the Committee on the Revision of the Laws and made a total reduction of approximately $200,000 in the cost of printing and binding.

In compliance with the resolution of Congress, distribution has been made of the preliminary copies of the code without index and ancillaries. The full number of copies of the text has been printed, and as soon as the indexers complete their work the final edition will be issued as part 1 of volume 44 of the Statutes at Large.

The new code supersedes the volume known as the Revised Statutes of 1874–1878 and will also contain all the general and permanent laws of the two supplements to the Revised Statutes and the Statutes at Large up to and including the first session of the Sixty-ninth Congress, thus combining in one book all the general and permanent laws of the United States which now fill 25 big volumes. With the addition of the index, ancillaries, and general and permanent laws

of the first session of the Sixty-ninth Congress, the final volume of the code will contain approximately 2,300 pages, for which more than 10,000,000 ems of type had to be set. The permanent edition numbers 28,670 copies for distribution to Members of Congress, Government officials, courts, depository libraries, and for sale to the public.

PRINTING OF BUDGET A BIG JOB

Another voluminous publication recently completed for Congress was the Budget of estimated receipts and proposed expenditures of the Government for the fiscal year 1928. The big volume is printed annually for the Bureau of the Budget, and its 1,590 pages are filled with financial tables showing in minute detail the receipts and expenditures of every branch of the Government service. Less than 2,500 copies of the Budget are printed annually, but the volume is so large, requiring nearly 10 tons of paper, and the typesetting so complicated, that even the small edition costs approximately $25,000.

The Budget is the most important and the greatest "rush" job handled by the Government Printing Office each year. It can not be compiled until the Bureau of the Budget has completed its annual consideration of the departmental estimates and must set forth in detail the financial condition and requirements of the Government almost up to the hour Congress convenes. So the printing of this great volume now annually helps get the Government Printing Office into working trim for the even harder tasks that the Capitol imposes on it as soon as Congress gets into action each session.

The Budget, which has just been printed, required the setting of 16,378,000 ems of type, all but a few pages of which are tabular matter. A plan was evolved by this office last year whereby a large portion of the type set for printing the Budget is also utilized in the preliminary printing of bills for the Appropriation Committees.

In appreciation of the service rendered by the Government Printing Office, General Lord, the Director of the Bureau of the Budget, wrote the Public Printer under date of December 2, 1926, as follows:

I want to express to you my deep appreciation of the cooperation which you extended me in connection with the preparation of the Budget for 1928, not alone having in mind the very efficient proof reader which you detailed temporarily to this office to help us out, but also the close cooperation between our respective offices in the matter of handling the proof.

I also want to congratulate you on the efficiency of your plant as clearly evidenced by the manner in which the printing of the Budget was handled. Mr. Donald MacLeod, the chief of my estimates division, has just come into my office and said:

"I take off my hat to the Government Printing Office. It is the greatest institution of its kind in the world and the only one, in my judgment, that could do a job of this character within the limited time available and without a mistake or slip of any kind."

I heartily subscribe to everything which Mr. MacLeod said.

I send you my affectionate regards and best of wishes.

WORK FOR THE POSTAL SERVICE

The Post Office Department was a close second to Congress as the biggest patron of the Government Printing Office last year. Charges

for work for the Postal Service during the year amounted to $2,149,321.94, a slight decrease from the preceding fiscal year. Of this amount, $999,880.20 was paid for the printing of postal cards, which again broke the record, with a total of 1,596,862,880 cards. This was an increase of 1,485,990 over the 1925 production, which had exceeded the 1924 output by 342,303,710 cards.

The greatly increased production for the two years was due to the installation of three new postal-card presses, each of which can print, cut, and deliver in packs of 50 counted cards at the rate of 6,400 cards per minute. With a decrease of 10 per cent in the weight of the paper for the new presses, a saving of approximately $51,000 was made in the cost of the 9,445,595 pounds of paper required to print the annual output of postal cards.

Next to postal cards, the printing of money orders is the biggest annual job for the Post Office Department. During the year, 220,000,000 money-order forms were printed, almost equaling the record-breaking output of the preceding year. The number of international money orders increased 25 per cent, indicating a substantial growth of trade with foreign countries. There was also an increase in the money orders printed for Alaska, Hawaii, Porto Rico, Guam, the Canal Zone, and the Virgin Islands.

In 1907, when the Government Printing Office began printing money orders for the Post Office Department, the year's output was 80,000,000 forms, as compared with nearly three times that number last year. The average price charged by the private contractor prior to 1907 for money-order books of 200 forms each was 31 cents per book, as compared with the present Government Printing Office price of 17 cents per book, a saving of 14 cents per book on the annual production of approximately 1,100,000 books. Printing by the Government instead of by private contractor has made this big saving possible, notwithstanding the greatly increased cost of labor and material as compared with the years prior to 1907 when the private contractors charged almost double the present Government price for money-order books.

Other large jobs printed for the Post Office Department during the year included the following: Applications for money order, 252,000,000; registered, insured, and C. O. D. notices, 200,000,000; notices on undeliverable publications, 50,000,000; registry dispatch receipt cards, 40,000,000; return receipts, 34,000,000; special-delivery slips, 23,000,000; change of address slips, 19,000,000.

PATENT OFFICE TAKES THIRD PLACE

The Patent Office advanced to third place in the list of customers of the Government Printing Office with an expenditure of $1,147,571.55 for the year, displacing the Treasury Department, which reduced its printing orders to $991,625.03 from the preceding year's total of $1,014,824.79. The Patent Office increase for the year amounted to $244,437.47.

The enlarged force of patent examiners passed for printing 25,378 more pages of patent specifications and trade-mark designs than were issued in the preceding year, the total typed pages of specifica-

tions printed in 1926 being 175,021. The number of copies of specifications of patents and trade-marks accordingly increased 1,189,403, or 22 per cent more than for the preceding year, the total number of copies for 1926 being 6,488,265. The average number of patents printed per week during the year was 900, and the average number of trade-marks and designs, 326.

The Annual Index of the Patent Office was printed earlier last year than ever before, the first delivery being made on January 30, 1926. For many years it was customary to delay printing the Annual Index of Patents until September or October of the following year, which greatly handicapped reference to the issue of patents for the year. Two years ago the Government Printing Office began delivering the Annual Index in January and hopes to maintain that schedule of promptness. The Index for 1925 made 1,860 pages, an increase of 129 pages over the preceding year.

There were in all 91,609,614 copies of various publications, including annual reports and documents, printed during the year for all the branches of the Government service and Congress. The increase over the preceding year was 3,321,755 copies, or 4 per cent. Considerably more than two-thirds of the publications were of octavo size, which shows that the standardization of sizes has been generally adopted by the Government. The publications contained 1,643,244 pages of type. The paper and cloth bound copies totaled 1,229,066, a decrease of 523,960 from the number of copies bound in the preceding year.

AGRICULTURE LEADS IN PUBLICATIONS

The Department of Agriculture led the publication list with a total of 27,955,223 copies, including 12,279,000 farmers' bulletins, an increase of 1,583,322 copies in all over the fiscal year 1925. The War Department came second with 11,550,695 copies of its publications, or 166,005 more than for the preceding year. Commerce, with 3,190,862; Labor, with 2,176,209; Navy, with 1,805,789; and the Interstate Commerce Commission, with 1,801,726 copies, had substantially the same number of publications as last year. The Interior Department dropped from 3,350,305 to 1,965,851 copies, a decrease of 1,384,454 in its publications principally on account of the transfer of the Patent Office to the Department of Commerce. The growing work of the Veterans' Bureau is shown by the printing of 945,319 copies of its publications during the year, an increase of 483,744.

The output of cards, blanks, notices, and schedules for the year increased 281,244,603 over the production for 1925. The total for 1926 was 3,109,768,005, including the 1,596,862,880 postal cards and the millions of blanks for the Postal Service, as heretofore noted. In this class of printing also are 77,884,747 income-tax forms which the Treasury Department ordered for the fiscal year; 8,000,000 slips for the distribution of farmers' bulletins; and 2,600,000 shipping tags for the War Department.

There were printed 15,831,000 catalogue cards for the Library of Congress and for sale to other libraries. This is an increase in cata-

logue cards of 1,466,500 over the preceding year and is the largest number ever printed in one year. The Library of Congress received $164,438.30, an increase of 12 per cent, for the sale of these cards to other libraries in 1926.

Another item in the card class of printing are tabulating-machine cards, of which 29,311,000 were printed last year. It is expected that the printing of tabulating cards by this office will greatly increase the coming year, as six new machines specially designed to print and cut tabulating cards have recently been installed. The various branches of the Government normally use about 300,000,000 tabulating cards annually, but the bulk of these cards, except for the Census Office, the Department of Labor, and the Interstate Commerce Commission, have heretofore been purchased from the tabulating-machine companies under contracts for the use of their machines. Cards can be produced by the Government Printing Office at much lower prices than have been charged by the machine companies.

VAST QUANTITIES OF LETTERHEADS

Letterheads, noteheads, and envelopes were printed for Congress and the departments during the year to the number of 136,434,471, an increase of 22,764,917 over 1925. This number does not include the vast quantity of letterheads printed by the multigraphing plants of the departments, or the 200,000,000 printed envelopes procured by the departments under contracts awarded by the Post Office Department to envelope manufacturers; nor does the Government Printing Office print the stamped envelopes, with return cards, for sale to the public. All stamped envelopes are made and printed at Dayton, Ohio, under contracts awarded by the Post Office Department.

Under restriction by the Joint Committee on Printing, the use of embossed letterheads, noteheads, and envelopes has greatly decreased. In 1921 this office embossed 2,479,800 letterheads, noteheads, and envelopes at a cost of $16,490.99, as compared with 575,901 embossed letterheads and envelopes last year, costing $5,352.51. Members of Congress are now required to pay personally for the embossing of their stationery if they indulge in such luxury.

Blank books made during the year totaled 2,640,080 copies, or 384,112 more than were made in the preceding year.

In all of its work for the year, the Government Printing Office produced 3,363,672,564 printed copies, an increase of more than 300,000,000 copies over the preceding year. The type pages required for the year's printing totaled 1,946,966. Composition was the largest item of cost, amounting to $3,623,152.86. Other charges included $2,149,499.84 for bindery work, $1,257,614.13 for presswork, $234,209.30 for electrotyping and stereotyping, $181,768.05 for illustrations, and $3,161,843.06 for paper.

The total charges for the work of the year amounted to $11,799,074.87, and in addition the office expended approximately $800,000 for labor and material on jobs that were not completed during the year and consequently are not included in the year's total of charges for finished work.

COMPOSITION SHOWS LARGEST GAIN

The largest gain of the year was in composition, with a total of 2,158,890,100 ems of type set by the printing division. This was an increase of 30,495,400 ems over the preceding year, which in turn had added 83,729,800 to the total set in 1924. The greater composition for 1926 was accomplished with 140 fewer employees on the rolls and 1,328 less hours of overtime work in the linotype and monotype sections than during the year 1925. The apprentices alone set 87,416,700 ems of type during the year.

However, other than the apprentice section and the small amount of composition by the hand and job sections, machines were used to set this enormous quantity of type. A force of 1,200 compositors would be required to set by hand the quantity of type produced annually by the 377 machines in the Government Printing Office.

The linotype operators attained an average of 4,559 ems per hour for the fiscal year, an increase of 388 ems per hour over their 1925 average and 854 ems per hour more than the average for the five years 1916–1920. The monotype keyboard operators increased their average to 6,265 ems per hour for the year, a gain of 493 ems per hour over the 1925 average and 1,419 ems per hour more than the average for the five years 1916–1920. Undoubtedly the new wage scale based on individual production caused the linotype and monotype operators to increase their averages in the last two years, which fully sustains the action of the Public Printer and the Joint Committee on Printing in establishing a sliding scale of pay for operators.

Since a detailed system was adopted a year ago for recording and reporting the work of the monotype casting machines the production of that section has increased considerably. The units cast per hour from November, 1925, to April, 1926, averaged 3,852, while from July to December, 1926, the average increased to 4,320 units cast per hour. The percentage of production hours was 54 per cent, which compares favorably with casting machines in commercial printing plants.

PROOF READING COST MILLION DOLLARS

The expense of proof reading the year's output of printed book matter was $1,019,469.45. During the year the proof room had a daily average of 298 employees working, 23 more than in 1925. They read and revised 1,903,973 galley proofs in the year, or 757,089 more than in 1925.

Authors' alterations of proofs added $222,768.37 to the cost of printing for the year. This was a slight increase over the expenditure for 1925 and represents less than 7 per cent of the total composition charges.

Extra expense incurred by "rush" work on jobs handled out of the regular order for departments caused an additional charge of $21,082.23. During the six years ended in 1921 the cost of "rush" work was $616,837.58, while in the six-year period 1921–1926 it cost $173,325.93, a reduction of $443,511.65. The departments are cooperating with the Public Printer in cutting down the number of unnecessary

"rush" jobs, and the Government Printing Office is handling routine work much more expeditiously than in former years, thereby doing away with the extra expense of "rush" orders.

The printing of annual reports of departments and other Government establishments during 1926 cost $198,542.91, an increase of $4,148.18 over the previous year.

The annual reports of the Public Printer which in six years ended in 1920 cost $31,518.09, have since been reduced in size by eliminating unnecessary tables with a total cost of $4,950 during the six-year period 1921–1926.

PLATEMAKING CONTINUES TO INCREASE

The platemaking division continued to increase its annual output with a total production of 10,948,121 square inches of electrotype and stereotype plates, which was 500,890 square inches more than for the preceding year. This work was done with six fewer employees and 1,223 less hours of overtime than in 1925. The production of stereotype plates increased 684,641 square inches, while that of electrotypes decreased 257,606 square inches, which indicates a substantial economy in the increasing use of the less expensive plates. Of the stereotype plates, 411,627 square inches were nickeled and used in place of plates which formerly were electrotyped. Two years ago the office used only 7,184 square inches of nickeled stereotype plates.

A chromium plating apparatus was installed during the year to produce plates with a more durable printing surface. A test run of chromium plates on the postal-card presses gave 1,379,050 impressions as compared with 600,000 impressions obtainable from nickeled electrotypes.

The new wax ruling machine has effected a material saving over the old process of hand ruling of forms. For example, on one job which would have required 25 hours of a compositor's time to set the type and rule out the form, the ruling was done in wax by the machine in 6 hours after the compositor had taken 1½ hours to set the text type, thus saving 17½ hours on the entire job.

A 3,000-ton lead molding press has also been added to the excellent equipment of the platemaking division. With this press the finest of halftone plates can be reproduced.

The photo-engraving section of the platemaking division produced 637,292 square inches of halftones and line cuts, a decrease of 27,346 square inches from its 1925 production, due to the smaller demand for line cuts. The output of halftones increased 15,118 square inches. The photo-engraving section has been in operation four years and is now producing all the halftones and line cuts required for the printing of this office.

PRESSWORK DIVISION IS KEPT BUSY

The presswork division, with a total of 160,345 forms for the year, put 15,340 more forms to press than in 1925. The number of actual impressions printed from these forms during the year was 465,549,-

492, a decrease of 5,834,808 from the preceding year, due mostly to 6,278 less hours of press running time and 5,984 less hours of overtime work.

The more general adoption of new twin chases for doubling up the number of pages on presses also materially decreased the number of actual impressions. In fact, the use of twin chases on 15 big jobs alone effected a reduction of 1,067,338 impressions, thereby saving $3,844.60 in presswork, folding, gathering, and sewing.

The chargeable impressions for the year totaled 2,056,808,214, a decrease of 72,777,292, which occurred mostly in book work.

The bindery showed a substantial gain for the year in its pamphlet work, ruling, perforating, tablet making, and several minor operations. Pamphlet copies wire stitched totaled 47,442,436, an increase of 1,015,547 over the preceding year. Paper-covered copies numbered 5,367,364, an increase of 783,576 for the year; and books cased-in (bound in cloth) totaled 1,272,999, an increase of 15,920. The ruling machines lined out 21,657,309 sheets, or 560,461 more than in the preceding year. The perforating machines handled 7,569,351 sheets, an increase of 986,877. Tablets to the number of 2,903,111 were made, an increase of 52,735 over the 1925 output.

With 65 fewer employees on the rolls and the failure of the Department of Agriculture to submit its Yearbook on time during the fiscal year, there were decreases in several other principal operations of the bindery. Machine folding of printed sheets totaled 221,987,941, a decrease of 13,501,485; machine gathering of printed signatures, 130,285,798, a decrease of 9,654,818; machine sewing of signatures, 71,977,215, a decrease of 11,844,396; machine trimming of books and pamphlets, 56,392,663, a decrease of 333,454; machine stamping of covers, 2,573,041, a decrease of 169,450 copies.

ACTS OF EARLY CONGRESSES REBOUND

To the bindery was committed one of the most important undertakings from a historic viewpoint that the office has ever handled. The Department of State made requisition for rebinding the original parchment copies of the acts of Congress from the First to the Fourteenth Congress, inclusive. These priceless documents were written with pen and bear the signatures of Presidents Washington, Adams, Jefferson, and Madison. They had been bound in 17 books, which long since had become useless because of decay and neglect. The parchments, however, were in good condition.

On account of the unwieldly containers that would be required to bind them by sessions, it was decided to assemble the sheets in 33 smaller binders. A five-post, loose-leaf binder of high-grade metal parts was especially constructed for this job, each binder having a separate lock and key. The parchments were securely sewed to heavy guards, the guards punched and eyeleted to fit the posts of the binder in such a way that by unlocking the binder the parchments could be easily removed for photostating. To protect the edges from dust, a strong canvas envelope was made to fit inside the covers and inclose the entire contents of each binder. A canvas cover finished the volumes in attractive and serviceable style, much to the satisfaction of

the State Department officials, who approved the plans in all details. The cost of this work will be about $3,600.

The bindery also rendered the State Department valuable aid in the preservation of its treaties and state papers by making 3,224 specially designed boxes in which to file these important papers. The boxes were of various sizes and specially constructed with separate compartments to hold and protect the imposing seals attached to the treaties. These boxes cost approximately $4,400.

MANY LETTERS OF APPRECIATION

In appreciation of the good work and prompt service rendered by the Government Printing Office on numerous occasions during the year, Cabinet officers and other prominent officials of the Government have formally expressed their thanks in writing to the Public Printer. One of the largest customers of the Government Printing Office is the Department of Agriculture, with its orders for nearly $800,000 annually, and it was especially pleasing, therefore, to receive the following commendation from Secretary of Agriculture Jardine on April 9, 1926:

I wish to express the department's appreciation of the splendid cooperation shown by the Government Printing Office in putting through so expeditiously the several jobs of the Forest Service intended for use throughout the country during American Forest Week.

A total output of 1,290,000 pieces of printed matter on schedule time is a fine showing for your office and for our department, and I feel that a very large part of the success of American Forest Week will be due to having this material in ample time for distribution.

On December 11, 1926, Secretary Jardine again expressed his thanks for the cooperation of this office with the Department of Agriculture, as follows:

When it sometimes becomes necessary for the Department of Agriculture to request particular speed in connection with the issuance of some of its publications, it is gratifying to know that your organization responds with prompt and efficient cooperation.

We recently requested special services in connection with the publication of Department Bulletins 1441, 1442, and 1443, which were urgently needed in completed form for a meeting in Chicago. I want to thank you and the members of your staff who assisted in securing the delivery of these bulletins, which were available in time for use at the meeting, thereby facilitating our work.

Secretary of the Navy Wilbur wrote the Public Printer as follows, under date of March 10, 1926:

I wish to express the appreciation of the Navy Department for the expeditious manner in which the Government Printing Office completed the work of printing the General Signal Book, jacket No. 51371, Navy. Sufficient copies of the book were delivered to this office in time to effect the issue to the United States Fleet.

As the work of printing and assembling this book required care and attention beyond the ordinary, because of its peculiarities in composition and construction, special commendation is due the printing division and bindery division. The splendid cooperation of these divisions with the representative of the Navy Department handling the job was particularly pleasing and resulted in complete satisfaction to this department.

COMPLIMENTED BY STATE DEPARTMENT

Assistant Secretary Olds, in writing for the Secretary of State, sent the Public Printer the following communications:

Under date of April 3, 1926—

I take this opportunity to express again the satisfaction of the department at the spirit of hearty cooperation which the department is meeting in its dealings with the Government Printing Office in general and the office of the Superintendent of Documents in particular.

And under date of October 13, 1926—

My attention has just been called to a piece of work now being done for the department by the Government Printing Office which appears to deserve special commendation. The current Diplomatic and Consular List for October 1, 1926, consisting of 78 pages, is being handled very expeditiously. Copy went to the Government Printing Office October 2; proof was submitted October 7 and returned approved for press October 9.

There has been involved in the editing and printing of the last two numbers of the Diplomatic and Consular List a complete revision and resetting of the publication, necessitating numerous corrections and rearrangements and bringing the copy into conformity with the rules of the style manual. This has been a very exacting job for everyone and one in which the Government Printing Office has cooperated splend dly with the department. * * * It may be added that for some years this publication has been issued from 3 to 4 months after the first day of the quarter as compared with approximately 15 days in this instance.

Among other letters from officials who have expressed appreciation of the work done by the Government Printing Office during the year are the following:

From Hon. Frank White, Treasurer of the United States, dated July 6, 1926—

I have received a letter from the Secretary of the Treasury expressing his gratification at being able to distribute the Treasury Statement for June 30, approximately 24 hours earlier than the usual time and commending this office for its splendid work in getting out the statement so promptly.

This statement, as you know, is printed at the Government Printing Office, and it affords me pleasure to inform you that our success in expediting the statement was due in a great measure to the very splendid and efficient cooperation of Captain Moorhead of your organization.

From United States Senator Royal S. Copeland, of New York, dated April 21, 1926—

I am amazed that so few mistakes occur. Your work is wonderful and I congratulate you.

LARGEST SUPPLY SCHEDULE EVER PRINTED

From Mr. P. H. Birch, acting superintendent of supplies, General Supply Committee, dated July 6, 1926—

The General Schedule of Supplies for the fiscal year 1927 is the largest ever printed, comprising 605 pages, and although the last of the signatures were not released for press until June 22 complete delivery of the bound schedules was effected by June 30, 1926, over a thousand copies being received as early as the 26th ultimo, which gave purchasing officials of the Government an opportunity to draw necessary orders before the beginning of the new year.

Inasmuch as the Government Printing Office was crowded with work contingent to the closing days of Congress, the Deputy Public Printer and his assistants are to be doubly commended for their splendid cooperation in the work of the printing and binding of the publication.

From Dr. Herbert Putnam, Librarian of Congress, dated February 24, 1926—

Among the multitude of publications that (theoretically at least) pass under your scrutiny, I hope you will not fail to notice the brochure with reference to the "Library of Congress Trust Fund Board."

It is a production which we are not ashamed to send to the most finical connoisseur; and, in fact, it is precisely the connoisseur whom we intend it shall reach, and—entice!

And I need not assure you that the attention which your staff has given to perfecting it for this purpose is very warmly appreciated.

From Lieut. Col. U. S. Grant, 3d, director, Office of Public Buildings and Public Parks, dated December 2, 1926:

It gives me great pleasure to express to you my appreciation of the remarkable speed with which the Government Printing Office completed the printing of the specifications for reconstructing the roof and third story of the White House. The manuscript was turned over to the printer on November 17 and the finished specifications were delivered at this office on November 19. I feel sure that no other printing establishment could have approached this record, and I am very grateful to the members of your organization whose skill and energy made it possible.

From Mr. Charles Moore, chairman, Commission of Fine Arts, dated November 10, 1926:

On behalf of the Commission of Fine Arts I desire to thank you for the care and attention given to the tenth report of the commission in the Government Printing Office, and to express to you the satisfaction of the commission in the typographical appearance of the report.

ARTISTIC TYPOGRAPHY IS PRAISED

From Maj. X. H. Price, secretary, American Battle Monuments Commission, dated February 9, 1926:

Receipt is acknowledged of 1,000 copies of the annual report of the American Battle Monuments Commission. Please allow me to express our gratification at the excellent results obtained by your office in printing this report. Not only were the photographs appearing in it reproduced remarkably well, but the typography and general make-up of the report were excellent. I desire to express also our appreciation of the interest which members of your organization took in the printing of this report and of the helpful suggestions which they made to us from time to time, which so materially contributed to the fine results.

From Mr. C. C. Barton, assistant chief, division of publications, Department of Commerce, dated January 18, 1926:

The issuance of the variety of schedules on which to list the 1925 Census of Manufactures has constituted quite a volume of work for your office. The delivery of these schedules for 1925 is practically completed, and in that connection Mr. Pierce, of the issuing bureau, has the following comment to offer:

"The bureau desires to extend the thanks of all concerned to your division and the Printing Office for the correct manner in which the schedules were printed and the very satisfactory deliveries of proofs and completed copies."

From Mr. M. L. Fowler, head office supply section, Fleet Corporation, dated April 6, 1926:

We herein quote a paragraph from a letter received from the director of traffic regarding the deliveries of Schedules of Ship Sailings:

"It affords me considerable pleasure to compliment the Government Printing Office for the prompt printing and delivery of the April issue of 'Schedule of Sailings,' and it will be appreciated if you will advise the Public Printer accordingly."

From Hon. Thomas E. Robertson, Commissioner of Patents, dated January 8, 1926:

This office very much appreciates the fact that, although two holidays and a Sunday intervened in Christmas week and one holiday and a Sunday in New Year's week, the Official Gazette for the weeks of December 29, 1925, and January 5, 1926, was issued on time. This is very gratifying.

From Mr. A. L. Quaintance, acting chief, Bureau of Entomology, Department of Agriculture, dated July 12, 1926:

I wish to express to you my appreciation of the promptness with which the Government Printing Office approved, packed, and forwarded to Mr. A. F. Burgess, 964 Main Street, Melrose Highlands, Mass., the 6,500 gipsy-moth and brown-tail moth quarantine maps made for the Bureau of Entomology and the Federal Horticultural Board by the United States Geological Survey.

These maps, received from the survey on Saturday morning, July 10, were approved the same morning and, through the efficient and energetic cooperation of Mr. Emerson and Miss Draney, of the purchasing division of the Government Printing Office, were repacked and shipped by express on the noonday train the same day.

As these maps were urgently needed in New England, this cooperation has been of great value and will undoubtedly make these maps available to the quarantine inspectors several days earlier than would otherwise have been the case.

DISTRIBUTION OF PUBLICATIONS

The Government Printing Office not only prints practically all the publications for the various branches of the Government, but it also distributes the great bulk of these publications, either by direct sale to the public or to supply the free mailing lists furnished by the departments. The Superintendent of Documents last year distributed 60,990,405 copies of publications, an increase of 11,551,478 copies over the preceding year. Of this number, 47,700,277 copies were sent out on the free lists maintained by the departments, 10,962,571 copies were sold, and 1,552,738 copies were distributed to the depository libraries. These figures do not include the additional millions of publications other than Farmers' Bulletins that are furnished annually to Members of Congress for free distribution to their constituents.

As the 91,609,614 copies of publications printed during the year 1926, not including the Congressional Record or patent publications, cost $5,217,351.82, it is fair to estimate that the free distribution of all but the sales and library copies cost the Government more than $4,000,000 annually. Compared with this expenditure for free distribution, the receipts from the sale of Government publications, amounting to $544,937.51 last year, are a poor financial return on the enormous investment that the Government has made in its publishing business.

But there is some encouragement in the fact that the sales receipts have almost doubled in the last six years. Last year 3,191,789 more copies of Government publications were sold than in 1925, and the receipts increased $57,014.88. For the same year, however, the free distribution by the departments increased 8,523,771 copies.

FILLING WASTEBASKETS OF NATION

These figures sustain the statement made by General Lord, the Director of the Bureau of the Budget, at a recent meeting of the

business organizations of the Government that "We are spending too much of the taxpayers' money in helping fill the wastebaskets of the Nation." General Lord urged the Government organizations to reduce the free issue of publications to the smallest number possible.

The waste is not only in the extravagant free distribution of Government publications, but also in the preparation and printing of many books and pamphlets that have little or nothing to do with the proper functions of the Federal Government and in the duplicating or overlapping of publications issued by a number of the departments.

All of the wastebasket material cited by General Lord does not come from the Government Printing Office, however. During and since the war, the Government departments and establishments in Washington have spent many thousands of dollars in equipping and operating large multigraphing and mimeographing plants, which are annually producing and distributing vast quantities of more or less pretentious publications.

Last year these so-called "duplicating" plants, which are really printing offices under another name, used approximately 2,200,000 pounds of paper, which, if cut into ordinary letter size, would provide 215,000,000 sheets for the year's output of multigraphed and mimeographed publications. The cost of all this work is unknown, because it is paid for out of various and sundry appropriations other than for printing, but it adds to the expense of printing and distributing Government publications and helps fill the wastebaskets of the Nation.

Several years ago Congress gave the Joint Committee on Printing power "to adopt and employ such measures as, in its discretion, may be deemed necessary to remedy any neglect, delay, duplication, or waste in the public printing and binding and the distribution of Government publications." The Joint Committee has done much good work in curtailing waste of printing, but it has neither the time nor the facilities to cover the whole field and regulate all the publications of the Government.

BUDGET CONTROL OF PERIODICALS

Congress also conferred on the Director of the Bureau of the Budget authority to approve the use of appropriations for the printing of "journals, magazines, periodicals, and similar publications," and there has been a substantial restriction of that class of Government publications, which started to run wild during the war.

The Public Printer has established a requisitions review board in the Government Printing Office to apply needed economies in the execution of departmental orders for printing and binding. The board has faithfully endeavored to effect savings wherever possible without undertaking any censorship, which is not within the power or desire of the Public Printer.

But, as pointed out before, notwithstanding the efforts of the Joint Committee on Printing, the Director of the Bureau of the Budget, and the Public Printer, the wastebaskets of the Nation are still overloaded with Government publications of various kinds.

Perhaps the most effective way to prevent such waste would be to reduce the appropriations now available for printing and for the various devices which help fill the trash baskets of the taxpayers. Undoubtedly the Government could function just as well with the expenditure of one or two million dollars a year less for publications that are seldom read and are of little service to the general public. At any rate, a curtailment by Congress and the departments of the present extravagant system of free distribution would be a most commendable saving and would give a stimulus to the sale of Government publications that might solve the problem. The sale of publications could be greatly increased by properly advertising the Government's vast storehouse of useful information and extending the facilities for marketing the products of this office; but it would be a waste of funds and effort unless the free-for-a-favored-few competition is discontinued and the distribution of all Government publications placed on a practical business basis.

BOOKS FOR DEPOSITORY LIBRARIES

The public also could be better served by an equitable distribution of Government publications to libraries throughout the United States. Under an old law only one public library in a congressional district can be made a depository of Government publications on designation by a Member of Congress.

With the subsequent growth and shifting of the population and the various changes in the boundaries of congressional districts, many depository libraries are not now located so as to serve the districts for which they were originally designated. But other depository libraries can not be selected under the present law for the new and larger centers of population. For example, there are two depository libraries in a small eastern town, while the libraries of two much larger cities in the same district are barred under the present law from designation as depositories of Government publications.

On the other hand, many districts apparently do not desire or can not assume the burden of having a depository for Government publications. Only 468 out of the 667 available library designations have been made by Members of Congress. The 199 vacant designations can not, however, be assigned to libraries in other districts. Consequently many important libraries are compelled to obtain Government publications by haphazard importuning of Congressmen and the departments.

The selection privilege granted depository libraries a few years ago has also disclosed the fact that many of the present designations are either unwilling or lack the facilities to provide sufficient space for adequate deposits of Government publications, thereby making their designation as depositories of little service to the public.

NEW PLAN OF DEPOSITORY SELECTION

Notwithstanding the defects of the present depository system, the libraries provide the most economical and useful distribution possible for Government publications. Therefore it is urgently recommended that Congress authorize a more equitable and adequate

method for the designation of suitable libraries as public depositories for the publications of the Government.

The suggestion is submitted that the depository libraries be designated by the Librarian of Congress and the Superintendent of Documents jointly, under such regulations as shall be approved by the Joint Committee on Printing, that not to exceed approximately 2,000 qualified libraries, including at least one for each congressional district, shall be granted the depository privilege, and that no more libraries be designated than can be properly supplied with Government publications within the annual appropriations made by Congress for that purpose. A bill covering these suggestions has been introduced in Congress by Senator Johnson, of California.

To list the vast number and variety of publications issued by the Government in the 150 years since the Declaration of Independence requires a good-sized library of itself. In fact, 17 large octavo volumes containing a total of 24,529 pages have already been printed to catalogue the publications of the Government from 1774 to 1919. The publications of the Government from 1774 to 1881 are all listed in one volume of 1,392 pages, but 16 additional volumes containing 23,137 pages are required to catalogue the publications issued by the Government in the 38 years from 1881 to 1919.

CATALOGUE OF WORLD WAR PUBLICATIONS

The biggest catalogue of the set is that covering the period of the United States' participation in the World War. This volume, which lists publications from July, 1917, to June, 1919, is entitled "The Document Catalogue of the Sixty-fifth Congress." It was completed and printed recently after several years had been devoted to its compilation by a number of expert cataloguers in the office of the Superintendent of Documents.

More than 60,000 cards were written in preparing the catalogue for publication, and the lists, which are printed two columns to the page, fill a royal octavo volume of 2,706 pages set in 6 and 8 point type. The printing and binding of this catalogue alone cost $28,093.07.

Copies of the catalogue have been furnished to the principal libraries throughout the country, but it is doubtful if any library, except that of the Superintendent of Documents and the Library of Congress, contain all the publications listed in the Government catalogue.

This great war catalogue includes not only all the publications issued by the Government Printing Office during the World War but also lists practically everything printed by any agency of the Government during that time. It records the extensive diplomatic correspondence, the voluminous military and naval reports on the preparation for and the conduct of the war, and the many publications of the American Expeditionary Forces in Europe.

The war brought into existence many new Government agencies, which did a vast amount of printing of their own accord. In the rush and confusion of war-time preparations and the hurried demobilization after the armistice, it was almost impossible to obtain com-

plete files of these historic publications, many of which, undoubtedly, will be of even greater importance in the future than now may seem apparent. But the Superintendent of Documents has diligently collected into his library all the available papers and has carefully catalogued them for the information of future generations.

The war catalogue entries under the heading entitled "American Expeditionary Forces" alone fill 14 pages of the book. The publications of the Food Administration also make a list covering 14 pages of double-column entries. The Food Administration publications, as catalogued, range from display posters to war-time recipes and even tissue-paper patterns of Hooverized clothes. All of these publications are listed in the catalogue according to alphabetical arrangement by which it is possible to find the subject matter, the issuing office, or the individual author of practically everything printed by the United States Government during the World War.

MECHANICAL IMPROVEMENTS EXTENSIVE

The mechanical improvements in the Government Printing Office have of necessity kept pace with the great increase and betterment of its production in the last few years. This has been made possible by the liberality of Congress, which increased the allowance for new machinery and equipment from $100,000 to $200,000 annually for the last five years, and also to the generous cooperation of the Joint Committee on Printing, which has helpfully supported the Public Printer in all his extensive undertakings for the rehabilitation of this great industrial establishment.

With the changes that have been made in the last five years and the plans that have been adopted for future improvements, the Government Printing Office is assured of leadership not only as the greatest printing works but also as one of the most efficient and best equipped manufacturing plants in the world.

The growth of the office may be seen in the addition of 84,133 square feet of floor space in the present buildings. This extra space has been acquired by adding a story to the main building, by bridging over and filling in extensive court areas, erecting numerous mezzanine floors, and roofing over large alleyways.

Besides there has recently been acquired through appropriation by Congress a two-story brick structure adjoining the main building on the west, which is also providing temporary storage for considerable paper stock. For the additional property Congress, last session, appropriated $42,000, partly in settlement of an old claim for damages in the erection of the main building of the Government Printing Office twenty-odd years ago.

With these alterations and additional property the Government Printing Office now has approximately 750,175 square feet, or over 17 acres, of floor space.

PLANS FOR EXTENSION TO BUILDING

Congress has also provided further to relieve the present overcrowded condition of the office by authorizing the expenditure of $1,250,000 for the immediate enlargement of the Government Printing Office.

A request for this additional fund was submitted by the Public Printer to the Public Buildings Commission last spring, and its prompt approval was due to the great interest that Senator Smoot, chairman of the commission, has always taken in the affairs of the Government Printing Office. In fact, to him is due much credit for the greatness of the present office, as he was the author of the legislation in 1919 which requires that practically all Government printing shall be done by the Government Printing Office. Prior to that time the field services of the Government had had more than a million dollars of printing done annually by independent or private plants.

With the $1,250,000 building fund it is proposed to erect an eight-story addition to the main building, extending westward on G Street about 112 feet. The new addition will replace the small building recently acquired on G Street and the old boiler house, and will add approximately 160,000 square feet of floor space to the printing plant. To the new part will be moved all of the shops and offices now occupying the old building at the corner of North Capitol and H Streets, thus lessening the danger of fire in that ancient structure. Although the old building will continue to be a fire menace to the entire plant, it may be used for less risky storage purposes until Congress feels able to replace it with an adequate fireproof building, as has been repeatedly urged in the annual reports of the Public Printer.

In the new addition will be located the carpenter, machine, electrical, and pipe-fitting shops, the laboratories of the testing section, and the office of the superintendent of construction and maintenance. Considerable additional space will also be provided there for the stores division and the Superintendent of Documents, as well as an adequate garage for the delivery trucks.

Already $100,000 has been appropriated for the purchase of the additional land required, and the Secretary of the Treasury has been authorized to enter into contracts for the entire estimated cost of the land and building, not exceeding $1,250,000 in all. Condemnation proceedings are under way for the necessary property, which with the parcel already transferred will add approximately 112 feet to the frontage of the Government Printing Office on G Street and provide a total building length of 520 feet on that side.

It is expected that the construction work can be completed within the next two years, which will give the Government Printing Office by far the largest quarters of any printing works in the world.

In addition to its 4,100 employees, the Government Printing Office houses 1,325 machines, which are required to carry on the enormous work of the plant. Many of these machines have been installed or replaced by more productive and modern equipment in the last six years.

MANY NEW PRESSES AND MACHINES

Among the more recent equipment are a score of new presses, including the three big postal-card presses, two 64-page Congressional Record presses, two large offset presses, 48 of the latest model of linotype machines, 50 90-em scale monotype keyboards, new Ludlow type and rule casting machines, and numerous machines for the bindery, platemaking, and new photo-engraving divisions.

The 128 monotype casting machines have been completely re-equipped with electrically heated pots, greatly improving the conditions in that room, where the heat and the fumes of the old gas pots had made working conditions almost unbearable. All of the 149 linotype machines have been equipped with automatic metal feeders, likewise greatly improving their production.

The bindery has a new casemaking machine, which turns out 12,000 cloth book covers daily, as compared with 2,500 covers produced by the old-type machines. A new perfect binding machine is just being installed, which will also greatly speed up production of paper-covered books. Several new style cutting machines have been added, which will greatly facilitate this work. Faster folding machines are likewise doing their full share of the increased production; one new type of a folder, in particular, doing more than double the work which formerly kept two machines busy. A disk ruling machine, equipped for either roll or sheet stock and having an automatic cardboard inserter, has materially advanced the delivery of ruled work. Gumming and stripping machines have replaced slower hand operations in the bindery.

In the platemaking division have been installed plate precision and solidifying machines, a 3,000-ton lead molding press, a wax ruling machine, more accurate plate beveling, shaving, and bending machines, as well as new stereotyping equipment.

Many automatic feeders have been added to the printing presses, with a reduction in five years of 45 in the number of persons employed at press feeding. Automatic humidifiers have been installed to better the atmospheric condition of the pressrooms and overcome static electricity troubles in the handling of paper.

An extensive production meter system has been connected with many presses and bindery machines to verify their output and properly account for lost time.

All of these improvements have effected a decided increase in production and assisted employees to earn their increased wages.

Every machine in the Government Printing Office has an individual motor drive, and many of them are also electrically heated. Approximately 1,600 separate motors and 500 heating units are used for that purpose. This electrical equipment, including 7,500 lights for the entire plant, requires 5,000,000 kilowatt-hours of electric energy annually.

POWER PLANT ENTIRELY REEQUIPPED

Since the dismantling of the old steam-generating plant in 1924, all the electric power and steam has been furnished this office by the big Capitol power plant, from which run two 3-wire high-tension cables and two 8-inch steam pipes through a concrete tunnel a mile and a half in length.

At the Government Printing Office a new substation has been completely reequipped with three synchronous converters of 1,500 kilowatts each to convert the Capitol 25-cycle alternating current to the direct current required for the machine motors, all elevators, conveyers, lighting, nine electrically driven pumps, the entire city post office load, and numerous other power applications. All princi-

pal power equipment is duplicated to provide amply for any emergency.

The power plant has a connected load of more than 6,000 kilowatts, but as the present demand is about 1,500 kilowatts, including the city post office load, the plant capacity of 4,500 is ample. Alternating current for the four air compressors, refrigerating plant, and certain heating units, including 128 monotype casters, is handled through the transformers, thus relieving the converters of a considerable load.

The reequipment of the substation was completed during the year, and the change from the old steam-power system has effected a definite annual saving of approximately $95,000, including the lower electricity cost, more economical pumping of water, recirculation of cooling water, and the use of smaller compressors during the lighter load periods. All of these specified savings have been instituted during the past year.

A complete system of recording meters has been applied to all the principal services maintained by the power section. These instruments give a graphic record of each service for every hour of the day and night, providing an invaluable check on the plant's operation.

Thus the Government Printing Office is kept in operation by one of the finest and most dependable power stations ever provided for a manufacturing plant, and has for its support the great power stations of the Capitol and the navy yard, either of which can be called upon for electric power at a moment's notice.

As before stated, all of the steam comes from the Capitol plant, which supplied nearly 70,000,000 pounds of steam last year for the 48 miles of heating pipes in the Government Printing Office.

CONSTRUCTION AND MAINTENANCE WORK

Practically all of the great amount of construction and maintenance work of the Government Printing Office for the last six years has been done by its own construction and maintenance division consisting of 287 employees. The division has well-equipped machine, carpenter, electrical, pipe, sheet metal, and paint shops in addition to its power and sanitary sections.

The machine shop completed 41,097 jobs during the year, including many new installations and the repair and improvement of old machines. It showed a saving of $9,139 for the year, including the salvage of $2,104 of old material.

The electrical section handled 29,873 jobs, and together with the machine section kept the 24 elevators in fit and safe condition to carry more than 4,000,000 passengers during the year, the daily average being over 13,000 passengers. All elevator cables and equipment are regularly inspected and tested to make sure of their capacity for carrying the heavy loads necessary in handling the work of the eight-story plant.

The pipe and sheet metal section contributed a worth-while saving in making it possible to heat all the buildings on a pressure of not exceeding 1¾ pounds, although pressure as high as 7 pounds formerly had to be carried, including both vacuum and gravity systems.

In addition to having the care of all plumbing, ammonia, air, gas, pneumatic tube, and drainage lines, this section also kept in condition 256,000 feet of heating pipes, including coils and radiators, with a total heating surface of 94,200 square feet. It also effected a saving of 42,000,000 gallons of water by means of a new return system for reuse of cooling water from the typesetting machines.

The carpenter and paint shop had 13,561 jobs to its credit for the year, including many large pieces of office furniture and equipment, such as 37 cabinets, 21 proof desks, 28 large galley racks, and 43 worktables. The carpenter shop utilized 338,820 board feet of lumber from old packing boxes in the making of postal card boxes and various fixtures, the new lumber for which would have cost $21,223.

SUPPLIES MADE FOR DEPARTMENTS

In addition to its routine work of printing and bookbinding the Government Printing Office has become a large manufacturing plant and supply house for the furnishing of paper and various printing materials to other branches of the Government service. This office is equipped to produce practically every material required in printing and binding, with the exception of paper and cloth. Even as to paper and book coverings the Government Printing Office, with its own large requirements, is in position to purchase these materials for other Government establishments more economically and satisfactorily than it is possible to have done otherwise.

For the last three years, under authority which the Public Printer obtained from Congress, the Government Printing Office has been supplying the departments and Government services in Washington with blank paper and also such envelopes as are not printed in the course of manufacture. This centralization of paper purchases has resulted in a substantial saving, and has provided the various branches of the Government service with better and more uniform paper at less cost than was possible under the old system of individual purchases and inspection.

Last year the Government Printing Office furnished the departments and other Government services 5,250,000 pounds of blank paper at a cost of $447,468.43. The paper was bought under the annual contracts awarded by the Joint Committee on Printing for the Government Printing Office. These contracts gave the departments the advantage of the lower prices obtainable for the larger and more definite quantities thus purchased through a central office.

All of this paper was bought on definite and uniform specifications, and the deliveries were tested by the experts at the Government Printing Office, thus insuring paper of the quality required by the contracts. The Government Printing Office was also able to store larger quantities of paper and thus meet the requirements of the departments for more promptly filling their orders. Tons of blank paper are bought in rolls or large sheets and cut and wrapped by the Government Printing Office to meet the sizes and quantities desired by the departments.

The fact that the Government Printing Office itself uses approximately 40,000,000 pounds of paper annually and that it has a complete organization for the purchase, inspection, testing, and storage of such a great stock explains why this office can handle the paper business much better than any other branch of the Government service. The success of this undertaking fully justifies the action of Congress in centralizing the procurement of paper for the various branches of the Government.

SUPPLIES AUTHORIZED BY CONGRESS

On the recommendation of the Public Printer, Congress has also authorized the Government Printing Office to furnish the departments and establishments of the Government with inks, glues, and other supplies manufactured in connection with the work of this office. Such a suggestion was submitted in the Annual Report of the Public Printer for 1925 and was strongly supported by the Director of the Bureau of the Budget, to whom it appealed as a thoroughly practical business proposition. Congress accordingly enacted into the law approved May 13, 1926 (Public Act 222, 69th Cong.), the following provision, which the Public Printer had submitted in his appropriation estimates for the fiscal year:

Provided, That inks, glues, and other supplies manufactured by the Government Printing Office in connection with its work may be furnished to departments and other establishments of the Government upon requisition, and payment made from appropriations available therefor.

This new activity of the Government Printing Office has been in operation only since July 1, 1926, but the marked success of the past six months has already justified the undertaking. The supplies furnished thus far have been confined mostly to inks, which the office was able to produce immediately with the equipment available for the manufacture of its own printing inks and with the assistance of its industrial laboratory.

From July 1, 1926, to January 1, 1927, the Government Printing Office furnished the departments with 6,579 pounds of printing inks of various kinds, mostly mimeograph inks. Besides, 1,556 quarts of writing inks and more than a ton of paste and glue have been made for the Government services. Most of this work has been done since September 1, 1926, which gives some idea of the quantity of the supplies required at the very outset.

Not only are the supplies made by the Government Printing Office of a quality fully equal to those heretofore obtained by contract, but the lesser cost is also greatly to the benefit of the Government.

COMPARISON WITH CONTRACT INK PRICES

The following comparison of the prices charged by the Government Printing Office and the current contract prices, July 1, 1926, of the General Supply Committee for similar supplies now furnished by this office shows the substantial economy that has resulted from the new procedure, the Government charges being from a half to less than a third of the prices charged by the private contractors:

Material	Government Printing Office price	General Supply price, 1926–27
Mimeograph ink, in 1-pound cans	$0.60 per pound	$1.50 per pound.
Multigraph ink, black, in 1-pound cans	$0.30 or $0.55 per pound.	$1.30 per pound.
Numbering-machine ink, blue, red, or black	$1.25 per pound in ½-pound cans.	$4.31 per pound in 1-ounce bottles.
Black addressograph ink for use on metal stencils, also suitable for sensitized check paper, in 1-pound cans.	$1 per pound	$2.73 per pound.
Blue multigraph ink, in 1-pound cans	$0.60 per pound	$2.25 per pound.
Standard blue-black writing ink for fountain-pen and general office use.	$0.48 per gallon, without bottles.	$0.87 or $1.05 per gallon in quart bottles.
Red writing ink	$0.20 per gallon, without bottles.	$0.93 or $1.07 per gallon in pint bottles.

In line with the new plan for the technical control and testing of all materials produced or used by the Government Printing Office, its ink plant has been placed under the supervision of the testing laboratory section. The ink-making equipment has been much improved with the addition of a new three-roll mill and the change of other machinery. More careful attention has been given to the making of the inks.

During the year the mills made 118,061 pounds of inks for the use of the presses of this office. Black ink for book and job printing constituted the bulk of the product, but, in all, 75 different kinds of inks were made during the year.

Success was attained also in the development of several special inks to meet the peculiar requirements of a number of services, including indelible inks for use on Government checks, precanceling postage stamps, and stamping passports.

An extensive investigation was made of inks for ruling machines to determine their permanency and proper use. The report of the chief of tests contains valuable formulæ and suggestions on this subject, which have been of much service to the office.

The new ink control system has also resulted in a material reduction in waste inks returned by the pressrooms. The amount of waste inks returned was reduced 20 per cent for the year, due to better handling and more careful cleaning out of the ink from the cans.

The production of glues and pastes, which are required in large quantities for the bindery, has also been placed under the supervision of the testing section which has developed several excellent formulæ for this material and also devised better methods of handling.

The report of the chief of tests furnishes some valuable details concerning the investigational work with glues in cooperation with the National Association of Glue Manufacturers.

Special adhesives were also developed for use on the State Department passports and for the Treasurer of the United States on signature papers. These adhesives have proved highly satisfactory.

TECHNICAL CONTROL OF TYPE METALS

Much of the time of the testing section during the year has been occupied with the new system established for the technical control

of all type metals used by the Government Printing Office and the correction of the old metal in harmony with the new standard formulæ.

The metal room, which remelts and alloys 10 to 15 tons of plate and type metals daily, was placed under the technical supervision of the chief of tests. A new 5-ton pot was added to the metal-room equipment. This pot is provided with mechanical agitators, thermostatic control, and devices for pouring the metal into water-cooled molds. The pigs of metal from the water-cooled molds are of closer texture than those from the air-cooled molds. A pyrometer was also installed which registers the temperature of each of the four pots in use. Definite rules have been adopted for the treatment of all the metals so as to insure standard and uniform quality.

Metal work for the year included the melting and conditioning of 7,843,448 pounds of old linotype, monotype, and stereotype metal. The linotype metal was found to contain too high a percentage of tin; by the addition of lead, the total quantity of linotype metal was increased nearly 7 per cent at the lower cost of the lead.

Both the linotype and monotype metals had acquired excessive quantities of copper and other foreign substances, which seriously impeded the production of the casting machines. The removal of these foreign substances has greatly improved the quality of the type for plating and printing purposes. A full statement of this work is submitted in the report of the chief of tests.

PAPER TESTING AND STANDARDIZATION

Paper testing continues, however, to be the principal task of the technical laboratory. During the year, 4,397 samples of paper and paper products were tested for compliance with the standard specifications. Paper manufacturers have so carefully complied with the Government requirements that only 171 rejections were necessary during the year.

There has also been cordial cooperation with the paper manufacturers in the work which the testing section has undertaken on behalf of the Government and with the United Typothetæ of America in the preparation of standard specifications and grades of bond and ledger papers. These tentative grades have already been adopted by the Joint Committee on Printing for Government bond and ledger papers, and it is expected that commercial printers will soon adopt similar specifications and grades for their own use.

Another forward step in the Government purchase of paper was the adoption of the 1,000-sheet count instead of the old 480 and 500 sheet ream method of expressing the weight and quantities of paper. The new count has been in effect during the year and has proven entirely practical and much simpler in application to paper quantities. The United Typothetæ of America and the Writing Paper Manufacturers' Association have also recently entered into an agreement to adopt the 1,000-sheet count, and the same count has been established in England.

Various kinds of paper will thus soon be universally known by the weight of 1,000 sheets instead of by the weight of the old 500-sheet ream, which simply means doubling the formerly designated

weight; for example, a 20-pound bond paper will be called a 40-pound paper in the 1,000-sheet count. This does not involve any change in the actual substance of the paper, as old standard 20-pound bond paper will continue to have the same substance, but will be expressed as 40-pound paper on the basis of the 1,000-sheet count, instead of as 20-pound paper for the old 500-sheet ream. The ream of 500 sheets is thus abolished and the weight or substance of paper determined by the weight of 1,000 sheets.

In connection with its paper investigation, the testing section has made an extended study of atmospheric conditions in printing plants and paper mills, and has also inquired into the moisture content of paper. Humidifiers have been installed in one of the large press rooms of the Government Printing Office with considerable success in eliminating static electricity which makes paper difficult to handle at certain seasons of the year. However, proper humidity control and the regulation of moisture and heat, which affect the dimensions of paper and its registry on the press, are big problems which remain to be solved, but the Government Printing Office is doing its share in an effort to find the real answer, as shown by the report of the chief of tests submitted herein.

TRAINING OF APPRENTICES A SUCCESS

It is also very gratifying to call attention again to the excellent work that is being done by the Government Printing Office in the training of apprentices for the various trades. This innovation has been in progress for the last four years, and recently, for the first time in nearly 40 years, the Government Printing Office was able to fill journeymen positions with qualified apprentices of its own training.

Twenty of the 200 apprentices have satisfactorily completed the required four years' course of training and have been promoted to journeymen in their respective trades, 16 as printers, 2 as electrotypers, 1 as a stereotyper, and 1 as a machinist. Five of the apprentices who recently finished their training as printers are among the best linotype operators in the office, one of them having an average of more than 5,000 ems per hour. One is rendering satisfactory service as an estimator and another as a computer.

In addition to assuring the Government Printing Office a steady supply of well-trained craftsmen, the apprentice section is helping materially in the production work of the office. During the year the 174 printer apprentices set up 87,416,700 ems of live matter, including the composition and making-up for 2,825 pages of various Government publications, a large portion being scientific and technical papers. The printer apprentices were also accredited during the year with 194,448 hours of productive labor, such as copyholding, imposing, proof reading, assembling, and correcting proof-read matter.

Recently 16 apprentices detailed to the patents section assembled the Annual Index of Patents, consisting of 1,922 pages, in 10 days, which was 1 day less than required by the same number of apprentices to handle 62 pages less of the index the preceding year.

Two years ago 16 journeymen printers took 11 days to handle the patent index, which was 192 pages less than the index for the present year.

The apprentice section likewise has in training 10 young men as bookbinders, 6 as electrotypers, 3 as stereotypers, 3 as photo-engravers, and several others as pressmen and machinists. During the year these apprentices rendered 45,825 hours of productive labor while under instruction.

The training of apprentices by the Government Printing Office has been accepted by the Civil Service Commission and the trade unions as properly qualifying those who have completed the course for designation as full-fledged journeymen. On completion of their training, apprentices are given certificates by the Government Printing Office that they are qualified for their respective trades and entitled to work as journeymen in the Government Printing Office without further civil-service examination.

Among the apprentices are several World War veterans, who are given adequate training in their chosen trades, thereby qualifying them as skilled craftsmen better than any other vocational school has been able to do. In fact, from experience with vocational trainees, the Government Printing Office has given the war veterans the only adequate training that has been provided for them in the printing trades. The Public Printer does not hesitate to assert that the Government Printing Office is now the best place in the United States for a young man to receive proper training in any of the printing trades under ideal environments and with excellent prospects for permanent employment at fair wages and reasonable hours of service.

RETIREMENT OF PROOF READERS AND OPERATIVES

When the Annual Report of the Public Printer for 1925 was submitted to Congress under date of December 31, 1925, there was pending before the Secretary of the Interior an appeal by the Public Printer from the decision of the Civil Service Commission holding that proof readers, copyholders, and bindery operatives employed in the Government Printing Office are not mechanics and therefore not subject to retirement at 65 years of age under the provisions of the civil service retirement act of 1920.

The details of the controversy with the Civil Service Commission and the appeal to the Secretary of the Interior were fully discussed in the Public Printer's report for 1925 and need not now be further reviewed, especially in view of the fact that Congress subsequently settled the matter to the entire satisfaction of the Public Printer by enacting legislation which superseded the decisions of the Civil Service Commission and the Department of the Interior and sustained the opinion of the Public Printer.

To complete the record it should be stated, however, that Assistant Secretary of the Interior Edwards, under date of February 27, 1926, handed down a decision denying the petition of the Public Printer and upholding the ruling of the Civil Service Commission that proof readers and copyholders are not mechanics and are therefore retir-

able at the age of 70, the same as Government clerks. As to the status of bindery operatives, the Edwards' decision apparently sustained the views of the Public Printer by holding that practically all operatives, except those engaged in handwork, are retirable as mechanics at the age of 65. The Civil Service Commission continued, however, to question the Public Printer's classification of all bindery operatives as mechanics. The commission discriminated against those who did not happen to be using tools or machinery at the time they reached the age of 65. Therefore, the Public Printer, in accordance with the statement in his appeal to the Secretary of the Interior, promptly recommended to Congress that the retirement law be amended so as to correct the injustice done the proof readers, copyholders, and bindery operatives of the Government Printing Office by the decisions of the Civil Service Commission and the Department of the Interior.

CONGRESS ADOPTS PUBLIC PRINTER'S PROPOSAL

Fortunately, Congress was considering a new retirement bill at the time, and the Public Printer and a committee of employees representing the trades affected were accorded a hearing by the House Committee on the Civil Service. That committee included in the pending retirement bill the following provision as proposed on behalf of the Government Printing Office:

> *Provided further*, That the term "mechanics" as used in this act shall include all employees in the Government Printing Office whose duties are to supervise, perform, or assist in apprentice, helper, or journeyman work of a recognized trade or craft, as determined by the Public Printer.

A similar provision was inserted by the Senate committee in its retirement bill. The bill, with the Government Printing Office provision, was passed by the House, but the Senate, due to a misunderstanding of the proposition, struck out the provision when the bill was considered by that body. However, the provision was restored to the bill in conference, due to the interest of Chairman Lehlbach and Representative Addison T. Smith of the House committee, and Senator Stanfield of the Senate committee, to whom the Government Printing Office feels especially grateful. The provision thus became law in the new retirement act approved July 3, 1926.

Accordingly, the Public Printer notified the Civil Service Commission of his decision to designate the following classes of employees as mechanics for the purpose of making them eligible to retire at the age of 65:

> All employees heretofore designated as mechanics within the retirement act of May 22, 1920.
> Proof readers and copyholders.
> All bindery operatives.
> All other employees who supervise, perform, or assist in apprentice, helper, or journeyman work of a recognized trade or craft in the Government Printing Office.

Thus were opportunely overcome the decisions of the Civil Service Commission, which had done a grave injustice to more than 760 proof readers and bindery operatives in the Government Printing Office and had for many months seriously disturbed their morale.

The action of Congress definitely restores the Government Printing Office to its real status as a manufacturing plant, and entitles it to considerations different from the ordinary rules that apply to the clerical establishments of the Government.

EMPLOYEES GRANTED INCREASED WAGES

In accordance with the Kiess Act of 1924, by which Congress granted the trades employed in the Government Printing Office the right to propose readjustments of their wages not oftener than once a year, committees representing various groups of employees submitted requests for further increases after the expiration of the year of the first settlement under the collective bargaining act. Their claims for more pay were based upon the higher cost of living, the general advance of wages elsewhere in the printing trades, and the increased efficiency of the employees of the Government Printing Office, which, it was argued, had more than offset the wage increase of approximately $900,000 granted in 1924.

After conferences extending over several months, during which time a thorough investigation was made of every phase of the wage question and consideration was given to the special advantages of Government employment, the Public Printer came to the conclusion that most of the employees of the Government Printing Office were justly entitled to increases of pay, but not to the extent originally requested by their committees.

The new wage scales proposed by the Public Printer were thereupon agreed to by all the respective committees of the trades affected, and these agreements were promptly approved by the Joint Committee on Printing. Accordingly, the Public Printer, in order to be fair and just to all alike, made proportionate readjustments in the pay of many other employees and officers whose compensation is not subject to negotiation or to the classification act.

The recent increases will add approximately $542,000 to the annual pay roll and bring the total yearly labor cost, not including the documents office, up to approximately $8,000,000, which is about two-thirds of the entire expenditures of the Government Printing Office for a year. The increase affects approximately 3,700 employees and adds nearly 7½ per cent to their annual earnings.

The higher wages have increased the total cost of printing and binding by about 4 per cent, but it is expected that the greater production and new economies will absorb fully half of the increased labor cost. Therefore, an advance of only 2 per cent on an average has been made in the charges for printing and binding for the current year. Some items, such as composition charges, have had to be increased more, but the general average is only 2 per cent higher than for the preceding year. In fact, notwithstanding the increases have added to the pay rolls of six years ago approximately $2,500,000, including the transfer by Congress of the $900,000 annual bonus to a wage charge, the present scale of prices for printing and binding averages only 6 per cent more than the cost in 1921.

The growing costs have been held within these moderate bounds by the better equipment and more efficient operation of the plant

in all its various divisions. The Government, as well as the employees, has been benefited by the better production of the better-paid personnel.

WAGES BASED ON EMPLOYEES' WORK

The new wage agreements established more definitely the principle of pay based on ability and production, rather than on flat rates. The agreements sustain the Public Printer's contention for this change as first adopted in the negotiations of 1924. Employees have generally come to appreciate the personal advantage of being permitted to earn according to their ability instead of being paid a flat rate regardless of their individual efforts.

The earnings of a large number of employees have been increased by many thousands of dollars, and the work of the office has been expedited by the increased production. This is notably true in the case of linotype and monotype operators, whose production averages increased about 1,000 and 2,000 ems an hour per operator, respectively, since the sliding scale of pay was adopted. At present 38 out of 169 regular linotype operators and 51 out of 80 regular monotype operators are earning the top rate.

The printers' new wage scale provides three rates for composing machine operators, based on production, quality, and other efficiency factors; and also separate rates for hand compositors and proof readers.

The pressmen voluntarily negotiated their wages in separate groups, and different rates were agreed upon for web, cylinder, and platen pressmen. Press feeders were placed in two groups, cylinder and platen, at different rates.

Two rates of pay were accepted by the bookbinders for handmen and machine operators, and 10 grades were established for bindery operatives not skilled as bookbinders.

Stereotypers, electrotype molders, and electrotype finishers are classed separately, but incidentally receive the same rate of pay in the present agreement.

RATES OF PAY OF PRINCIPAL GROUPS

The following table shows the rates of pay for the principal groups employed in the Government Printing Office for the years 1921, 1924, and 1926, the wages for 1924 and 1926 having been fixed by negotiation with the trades affected according to the provisions of the Kiess collective bargaining act:

Occupation	1921 (includes bonus)	1924 (Kiess Act)	1924 (Public Printer)	1926 (Public Printer)
Compositor	$0.85	$0.90	$0.95	$1.00–$1.05
Copy editor	.85	.90	1.05	1.10
Linotype operator	.85	.90	1.00–1.05	1.05–1.10–1.15
Maker-up	.85	.90	1.00	1.10
Monotype keyboard operator	.85	.90	1.00–1.05	1.05–1.10–1.15
Press reviser	.90	.95	1.05	1.10
Imposer	.85	.90	1.00	1.10
Proof reader	.85	.90	1.00	1.10
Referee	.90	.90	1.05	1.10

Occupation	1921 (includes bonus)	1924 (Kiess Act)	1924 (Public Printer)	1926 (Public Printer)
Caster helper	$0.60	$0.60	$0.65	$0.70
Bookbinder	.85	.90	.95	1.00
Bookbinder machine operator	.85	.90	1.00	1.05
Marbler	.85	.90	1.00	1.05
Folding machine operator	.70	.85	.95–1.00	.95–1.00
Bindery operator (supervisor)	.65	.65	.65	.75
Type machinist	.90	.90	1.05	1.10
Pressman, platen	.85	.90	.95	1.00
Pressman, cylinder	.85	.90	1.00	1.05
Head pressman	.90	.95	1.05	1.10–1.15
Roller maker	.90	.95	1.05	1.15
Ink maker	.90	.95	1.05	1.15
Press feeder, platen	.55	.55	.60	.65
Press feeder, cylinder	.55	.60	.65	.70
Postal-card bander	.55	.60	.65	.70
Electrotype finisher	.90	1.00	1.05	1.10
Electrotype molder	.90	1.00	1.05	1.10
Stereotyper	.90	1.00	1.05	1.10
Photo-engraver	1.05	1.10	1.15	1.20
Metal mixer in charge	.90	.90	1.00	1.05
Carpenter	.85	.95	1.05	1.10
Blacksmith	.80	.90	.95	1.00
Electrician	.90	.90	1.05	1.10
Machinist	.90	.90	1.05	1.10
Knife grinder	.80	.80	.90	.95
Painter	.85	.90	1.05	1.10
Pipe fitter	.85	.90	1.05	1.10
Sheet-metal worker	.85	.90	1.05	1.10
Saw filer	.90	.95	1.05	1.10
Skilled laborers	.45	.45	.50	.55
Messenger boy	.30	.30	.30	.30
Elevator conductor	.50	.50–.55	.50–.55	.55–.60

[1] 1923.

In addition to the above wages, the special rates of 15 per cent extra for night work, 50 per cent extra for overtime and Sunday work, and double time and a half for holiday work have been continued. The wage agreements with all the trades except the stereotypers, electrotypers, and photo-engravers run for two years from the date signed in 1926. The excepted trades agreed upon a scale for not less than one year.

Negotiations with the printers required more time than any other trade, inasmuch as they are the largest group in the office, numbering about 1,000 journeymen, of whom more than 95 per cent are members of the typographical union.

The various printing sections in the office elected a committee of 13 employees to confer with the Public Printer. After several meetings with the committee the rates proposed by the Public Printer were unanimously agreed to, although somewhat less in total than the scale requested by the committee.

EXPLANATION OF PRINTERS' WAGE INCREASE

In submitting the printers' wage scale to the Joint Committee on Printing for its approval, the Public Printer filed the following statement under date of June 23, 1926:

In accordance with the provisions of "An act to regulate and fix rates of pay for employees and officers of the Government Printing Office" (Stat. L. 43, p. 658), I have the honor to report that the Public Printer and the committee representing journeymen printers employed in the day and night hand, monotype, linotype, patents, proof, job, and library sections of the Government

Printing Office have agreed upon the following rates of pay and compensation to be paid the trades affected in the Government Printing Office and respectfully recommend that the same be approved by the Joint Committee on Printing:

	Per hour
Hand compositors	$1.05
Provided that emergency, probational, and reinstated compositors shall be paid $1 per hour until such time as the Public Printer may decide that they are entitled to $1.05 per hour, and regular compositors whose ratings are below the standard required by the Public Printer shall be paid $1 per hour as long as their services are needed.	
Imposers and makers-up	1.10
Proof readers and copy editors	1.10
Emergency, probationary, and reinstated linotype operators and monotype-keyboard operators	1.05
Provided that the pay of such operators may be adjusted to the pay hereinafter provided for regular operators whenever their ratings, as determined by the Public Printer, shall justify.	
Regular linotype operators and monotype-keyboard operators	1.10
Provided that individual operators whose ratings are below or above the standard required by the Public Printer shall be paid $1.05 or $1.15 per hour, respectively.	

The rates of pay for journeymen printers not included in the foregoing scale shall be determined by the Public Printer, but shall not in any instance be less than the rate provided for hand compositors.

The existing rates of pay and regulations for night, Sunday, holiday, and overtime work and the rules for up-and-down rating for temporary changes shall continue.

The foregoing rates of pay, if agreed to and approved by the Joint Committee on Printing, shall become effective on July 1, 1926, and shall continue in full force and effect for not less than two years thereafter and until other rates of pay may be approved by the Joint Committee on Printing as provided by law.

Nothing in this agreement shall prevent the Public Printer from discharging any employee on account of necessary reduction of the force or for other causes, as provided by the civil service rules and regulations. Promotions, demotions, transfers, and temporary assignments may be made as heretofore.

The Public Printer reserves the right to determine the standards of efficiency and the ratings of employees affected by this agreement and to adopt such regulations as he may deem necessary to apply to same.

AGREEMENT SIGNED BY ENTIRE COMMITTEE

A copy of the foregoing agreement signed by the Public Printer and every member of the committee representing the printer employees of the Government Printing Office is inclosed herewith.

The agreement was reached after numerous conferences and exchanges of counterproposals between the Public Printer and the committee of printer employees. The wage negotiation was opened by the committee of printer employees, who under date of February 8, 1926, submitted the following request for a new wage scale with a brief in support of their proposal, a copy of which is inclosed herewith:

"That all printers, linotype operators, monotype operators, makers-up, proof readers, imposers, job and hand compositor's (the producing trades) employed in the Government Printing Office be paid at the rate of $1.10 per hour, besides restoring the 20 per cent additional for night work, a custom which had prevailed for many years in the office."

The proposal as first submitted by the committee would, if adopted, have required an annual wage increase for printers alone of approximately $300,000; and if the same rate of increase (10½ per cent) was to be accorded all other employees, it would add approximately $776,000 to the annual wage expenditure of this office. Such an increase would seriously embarrass the printing appropriations for Congress and the departments for the fiscal year 1927. The increase as finally agreed upon with the committee is approximately 9 per cent for printer employees and, if approved, will add about $210,000 to the annual

wages of 935 printer employees, a reduction of about $90,000 from the amount originally requested by the committee. The agreement proposes an increase of 10 cents an hour for 730 printer employees and an increase of 5 cents an hour for 225.

The following table shows the present wage and the proposed wage for the printer employees effected by this agreement:

	Present rate per hour	Proposed rate per hour
Hand compositors	$0.95	$1.00 1.05
Imposers and makers-up	1.00	1.10
Proof readers	1.00	1.10
Copy editors	1.05	1.10
Emergency, probational, and reinstated linotype and monotype keyboard operators	1.00 1.05	1.05
Regular linotype and monotype keyboard operators	1.05	1.05 1.10 1.15

SLIDING SCALE FOR MACHINE OPERATORS

Attention is invited to the fact that the proposed wage agreement continues the present sliding scale for the compensation of typesetting machine operators according to their efficiency and production averages. This complies with the policy heretofore adopted by the Joint Committee on Printing. It may be of interest to the Joint Committee on Printing to know that the several rates of pay for operators, as adopted in 1924, have resulted in a material increase in machine composition. The average for linotype operators for the fiscal year ended June 30, 1924 (shortly before the adoption of the sliding scale), was 3,715 ems per hour. The average for linotype operators for the fiscal year 1925 was increased to 4,171 ems per hour, and for the 10 months of the fiscal year 1926 to 4,503 ems per hour, with an average of 4,723 ems per hour for the month of April, 1926. The average of monotype keyboard operators for the fiscal year ended June 30, 1924, was 5,048 ems per hour. For the fiscal year 1925, the monotype operators increased their average to 5,772 ems per hour. Their average for the 10 months of the fiscal year 1926 was 6,324 ems per hour, with an average of 6,130 for the month of April, 1926.

In arriving at this agreement, careful consideration was given to the rates paid in commercial offices, both newspaper and book and job offices, in cities comparable with Washington. I am of the opinion that the rates proposed are fully justified by the pay of printers elsewhere and are necessary to attract and retain mechanics of the high grade required for Government printing. The rates proposed for the Government Printing Office range from $48 to $55.20 per week for printers employed on day work, and from $55.20 to $63.36 per week for printers employed on night work. Only a comparatively small number of printers will earn the maximum rates.

For comparison with the proposed rates for the Government Printing Office, I cite the following minimum day scales for book and job offices in several cities: San Francisco, hand and machine men, $51; Chicago, hand men, $51, machine men, $52.40; Detroit, hand men, $48.40, machine men, $50.60; Jersey City, hand and machine men, $53; Newark, hand and machine men, $56; New York City, hand and machine men, $54; and Cincinnati, hand and machine men, $50. In Chicago, a new wage agreement is under consideration, and the employing printers have offered a scale ranging from $54 to $56 per week for day work, and $58 to $60 per week for night work.

COMPARISON WITH COMMERCIAL OFFICES

Although the Government Printing Office can not be compared to a newspaper office, being devoted largely to book and job work, it is proper to give some consideration to the scale paid by Washington newspaper offices, inasmuch as the Government office comes directly into competition with the local newspaper offices for the supply of printers, especially linotype machine operators. Therefore I invite attention to the recent material increase in the scale

of pay for printers employed on Washington newspapers, who were granted a rate of $54 per week for day work and $60 per week for night work on the basis of a seven-hour day. The local newspaper rate is accordingly $1.28 4/7 per hour for day work and $1.42 6/7 per hour for night work.

The increase previously granted the printer employees of the Government Printing Office with the approval of the Joint Committee on Printing, under date of October 27, 1924, has been reflected in a material increase in the production of this office, which I believe has fully compensated the Government for the increased wage expenditure. I am also of the opinion that the further increase proposed at this time will likewise bring about even better production and that the best interest of the Government has been regarded in this agreement, which likewise does full justice to the employees. I therefore recommend that the agreement be approved by the Joint Committee on Printing.

Your attention is especially invited to the provision that the wage agreement shall continue in effect for at least two years from and after July 1, 1926.

The proposed agreement continues in effect the night rate of 15 per cent instead of the 20 per cent rate which had obtained for many years prior to the agreement of 1924 and which the committee of employees had requested should be restored. The proposed agreement also continues the present rate of 50 per cent extra for Sunday, holiday, and overtime work.

REGULATIONS GOVERNING RATES OF PAY

The agreement with the printers was approved by the Joint Committee on Printing on June 28, 1926, and became effective July 1, 1926, for a period of not less than two years. In accordance with the agreement the Public Printer issued the following regulations governing the rates of pay for hand compositors and typesetting-machine operators in the Government Printing Office:

TYPESETTING-MACHINE OPERATORS

1. *Operators' quantity ratings.*—These ratings will be based on the number of ems of measurable composition set per hour, under the rules for type measurement stated in paragraph 8. Ems set on time will not enter into quantity rating. These ratings will be as follows:

Quantity rating	Linotype	Monotype
	Ems per hour	*Ems per hour*
69 or under	Less than 3,700	Less than 4,900.
70 to 74, inclusive	3,700 to 4,000	4,900 to 5,600.
75 to 94, inclusive	4,000 to 5,000	5,600 to 7,000.
95 and over	5,000 and over	7,000 and over.

2. *Operators' efficiency ratings.*—To determine the efficiency of operators and fix their rates of pay, there shall be deducted from quantity ratings any debits which may be charged for a poor quality of work as shown by proofs of measurable composition or by any other efficiency factor. Proper credits may be allowed for special quality and kind of composition.

3. *Rates of pay for operators.*—(*a*) Operators with an *efficiency rating* of 69 or under (compiled as described in paragraphs 2 and 8) shall be deemed inefficient and will be dropped or assigned to other work if available.

(*b*) Operators with efficiency ratings of 70 to 74, inclusive, will be retained on machines as long as their services may be needed or there are prospects for improvement, and paid $1.05 per hour.

(*c*) Operators with efficiency ratings of 75 to 94, inclusive, will be paid $1.10 per hour.

(*d*) Operators with efficiency ratings of 95 or over will be paid $1.15 per hour.

4. All records of averages and ratings shall be compiled monthly and semiannually (January 1 and July 1), and compensation will be adjusted only at the beginning of first turn-in for each semiannual period, excepting that emergency, probationary, and reinstated operators shall be eligible for a change in rate as soon as they demonstrate the required ability.

5. Quantity ratings of regular operators will be based on not less than six months' measurable machine composition, and will be made up of monthly totals only, and include the last working day of the period. If an operator's measurable composition time does not approximate 500 hours in six months, one or more preceding months will be added to attain at least that number of hours for rating purposes. If an operator has not sufficient machine time or measurable composition work to his credit for a proper rating, his pay will continue unchanged until a rating is possible under these regulations.

5a. An emergency, probationary, or reinstated operator may be increased to $1.10 per hour after three months and not less than 250 hours on measurable machine composition if his accumulated production average for such period is 4,000 or more ems per hour on the linotype, or 5,600 or more ems per hour on the monotype, and his efficiency rating meets requirement. Such operator may be increased to $1.15 per hour after not less than 500 hours if his accumulated production average is 5,000 ems or more per hour on linotype, or 7,000 ems or more per hour on monotype, and his efficiency rating meets requirement.

5b. Averages shall include the full calendar month in which the required number of hours may be completed, and rates of pay will be adjusted at the beginning of the next turn-in and continue until otherwise readjusted as provided in these regulations.

6. Copy which in fairness to the operator and to the office should not enter into an operator's average will be set on time. Time-work will be assigned to operators having an efficiency rating of 75 or over, and will be rated principally for quality, but due consideration will also be given for quantity, according to the nature of copy.

7. Any operator going from time-work to measurable composition work, or vice versa, will be paid the rate received by him at time of change until close of current rating period, at which time his semiannual efficiency rating will determine the rate of pay.

8. In order to equalize ratings of operators engaged on various classes of composition, the following rule will apply to measurement of output: Add 10 per cent to face measurement of patent specifications; deduct 20 per cent from face measurement of Patent Gazette; add 50 per cent to face measurement of matter classed by the Public Printer as technical or slow; add 100 per cent to face measurement of tabular matter. The basis for measurement (single, one and one-half, or double) will be stamped on all folios of copy except patent specifications, Patent Gazette, and ordinary straight matter. The Public Printer reserves the right to make other adjustments in the basis for ratings whenever the work justifies.

9. Cumulated quantity averages and efficiency ratings of all operators, including the ratings of those engaged on time-work, will be posted at the close of each semiannual period for the information of those concerned.

10. If an operator is deemed inefficient or not up to the required standard, nothing in these regulations shall be construed as conferring a right to six months' trial for the purpose of obtaining a rating.

11. If an operator is separated from the service during the first turn-in of a rating period, and his rate per hour for that period has not been posted, his pay-roll account will be computed at his rate for the previous six-month period.

HAND COMPOSITORS

12. Emergency, probationary, and reinstated hand compositors shall be paid $1 per hour until such time as the Public Printer may decide they are entitled to $1.05 per hour.

13. All hand compositors will be rated on their general efficiency and according to the class of work performed. The rates of pay will be as follows:

(*a*) Hand compositors with efficiency ratings of 69 or less will be dropped.

(*b*) Hand compositors with efficiency ratings of 70 to 74, inclusive, will be paid $1 per hour and be retained as long as their services may be required or there is prospect for improvement.

(*c*) Hand compositors with efficiency ratings of 75 or over will be paid $1.05 per hour. All hand compositors, except those included in paragraph 12, will be paid $1.05 per hour until such time as their individual ratings shall require otherwise.

14. These regulations are subject to revision from time to time as the interest of the service may demand.

TOTAL INCREASE FOR PRINTING DIVISION

The new scale has increased the wages of the entire printing division approximately $254,000 annually. As the increase in 1924 amounted to $430,000, the total added to the annual pay roll of the printing division since the Kiess Act became effective is approximately $684,000.

The average yearly earnings of Government printers under the 1926 wage scale is $2,820 for day workers and $3,225 for night workers. Compared with the average of $2,325.41, as reported by the International Typographical Union for its members in 1926, the printers of the Government Printing Office have fared very well in their negotiations with the Public Printer.

In submitting their request for an increase of wages, the committee representing the printer employees expressed their appreciation of conditions in the Government Printing Office by the following statement to the Public Printer:

> The committee is not unmindful of the fact that under your administration there has been inaugurated and brought about many helpful improvements in the working conditions of the office, which is surpassed by few, if any, in the country. Appreciating all those improvements which are for the betterment of the workers, yet unless the "wage" is attractive "good and healthful" surroundings will not attract the best workers, which we believe the Public Printer is desirous of employing.

COMMITTEE THANKS THE PUBLIC PRINTER

On the conclusion of the negotiations and the approval of the new wage scale, the committee representing the printer employees by a unanimous vote presented the following signed resolution of thanks to the Public Printer:

> Whereas the fair-minded and friendly attitude displayed by Public Printer George H. Carter during the recent wage negotiations with a committee representing the printers in the Government Printing Office, which resulted in the most liberal wage scale ever granted to printers in the office, calls for public recognition of the fair and generous treatment received by our craft: Therefore be it
>
> *Resolved*, That the printers of the Government Printing Office gratefully acknowledge the fairness and justice of Public Printer George H. Carter in dealing with the committee, and that this resolution be suitably engrossed and presented to him as a mark of our appreciation and esteem.
>
> Geo. G. White, hand section, day; John E. Hogan, hand section, night; F. C. Roberts, proof room, day; Stephen A. Beadle, proof room, night; A. M. Forrester, monotype hand, day; William H. Rowe, monotype hand, night; Charles M. Flanagan, patent section; Reuben N. Jones, monotype keyboard, day; Jacob H. Stout, monotype keyboard, night; Lester S. Layser, linotype, day; Amos Z. Hunt, linotype, night; Charles M. Sizer, library; Robert W. Parker, job section, committee.

It is also pleasing to report that friendly relations have been restored between the Public Printer and the typographical union. In its May, 1926, election, the local typographical union overwhelmingly defeated and ousted from control all the officers who for several years had been maliciously attacking the Public Printer and seeking to rule or ruin the Government Printing Office. The local union also joined in repudiating and defeating the international president,

James M. Lynch, who had been grossly unfair in presenting false charges against the Public Printer to the American Federation of Labor. Since these charges were completely answered in the Public Printer's Report for 1925, there has been no renewal of the outrageous attacks. The decisive action of the union in repudiating their base instigators seems to have ended the affair, which gained nothing for the printers employed in the Government Printing Office and brought only disgrace or defeat to the outsiders who had sponsored the charges.

ANNUAL LABOR TURNOVER DECREASED

The labor turnover during the fiscal year 1926 was less than for several years, owing to the more normal flow of work and the satisfactory wage adjustment. Separations from the service, including retirements, numbered 380 for the year, as compared with 850 in 1925, and 489 in 1924. Appointments added 541 to the rolls in 1926, as compared with 556 appointments in 1925, and 714 in 1924.

The largest turnover for the year was, as usual, among the printers, who constitute the largest trade group in the office. There were 188 appointments of printers and 107 separations; while in 1925, 242 entered and 360 left the service. The number of bookbinders was reduced by 14 separations and none was appointed during the year. Of pressmen, 15 were appointed and 8 separated from the service.

Retirements for the year numbered 46, of which 26 were on account of age and 20 for disability. In 1925 there were 116 retirements. In 1924 the number was 56. All the employees who retired during the fiscal year 1926 were entitled to annuities from the Government.

For the entire year there was an average of 3,985 employees on the rolls, of which 3,121 were men and 864 women. The steady reduction of the force in the last six years is shown by the following statement of the average number of employees on the rolls from 1920 to 1926: In 1920, the average number was 4,989; in 1921, 4,488; in 1922, 4,307; in 1923, 4,002; in 1924, 4,007; in 1925, 4,101; in 1926, 3,985. The total number of employees on June 30, 1926, was 4,078. The office had an average of 378 employees off duty each day throughout the year.

HEALTH AND SAFEGUARDING OF EMPLOYEES

The report of the medical and sanitary officer in charge of the office hospital shows a great improvement in the health and safeguarding of employees during the year. There was a decrease of almost 25 per cent in the number absent on account of illness or injury.

No employees have been absent on account of wound infection in the last two years a sufficient length of time (three days) to claim compensation for the time so lost.

Owing to the careful safeguarding of machinery there have been no serious or preventable accidents during the past two years, and in

the last year only 16 employees were entitled to compensation for minor injuries.

According to the Monthly Labor Review for October, 1926, the Government Printing Office is one of only two Government departments showing a marked decrease during the last five years in the accident-frequency rate. All other departments reported an increase, some of which were comparatively high.

Accident data compiled by the United States Employees' Compensation Commission shows that the Government Printing Office had the lowest number of fatal and nonfatal accidents reported by any establishment of the Government for the five years, 1921–1925. This office also had the lowest number of accidents per man-hour (1,000,000 hours' exposure). The report is based on a record of three fatal accidents in the Government Printing Office in the five years, when, as a matter of fact, there were only two deaths and they were not caused by machinery or any preventable danger.

The medical and sanitary officer of the Government Printing Office thus explains the few accidents and better health conditions in this office:

Many old antiquated machines have been replaced by modern machinery which gives greater output, with less laborious effort.

The foremen of the various sections have taken a greater interest in the cleanliness of their rooms; more attention has been paid to ventilation; the old antiquated chairs have been replaced by up-to-date equipment; women workers who operate machines have been supplied with modern posture chairs which properly support the back while at work.

EMPLOYEES' CAFETERIA AND RECREATION

The cafeteria on the eighth floor of the Government Printing Office continues to increase in popularity and service to the employees. It is financed and operated by the Government Printing Office Cafeteria and Recreation Association, a voluntary organization of employees. This association also furnishes funds to equip the office baseball teams, maintain the bowling alleys, provide the Christmas entertainments for children of employees, conduct the annual office excursion, assist the Government Printing Office orchestra, provide music for holiday and memorial exercises, and in numerous other ways help to better the morale of employees with entertainment and recreation.

The following extracts from the annual report of the president of the Government Printing Office Cafeteria and Recreation Association, Mr. J. Thomas Ford, shows the excellent work that was done by the association in the year ended October 18, 1926:

During the past year the patronage in the cafeteria has held up unusually well, a record mark of 3,269 persons passing through our lines in a single day. The average daily service this year amounted to about 2,583 persons. From October 1, 1925 to September 30, 1926, the association has served a total of 806,009 persons.

During the past year the Cafeteria and Recreation Association has been called on for a number of banquets, most of which were held in Harding Hall. Included in this service was the banquet held by the Washington Club of Printing House Craftsmen on January 27, 1926; a buffet luncheon on April 6, 1926, to about 125 of the delegates attending the Pan American Congress of Journalists; and a banquet to both the white and colored baseball teams to celebrate the fact that both had won the 1925 championships in their respective

leagues. None of these banquets were financed by the Cafeteria and Recreation Association except those given to the baseball clubs, and authority for this expenditure was obtained through the general committee at one of its regular meetings.

A turkey dinner was served to the patrons of the cafeteria just prior to last Thanksgiving at a cost of 40 cents, and it was well patronized both at the luncheon period and by the employees and their families at supper time. It was very gratifying to know that after a careful check of the expenditures in connection with the dinner, the Cafeteria and Recreation Association suffered no loss, although we were fully prepared and expected to lose something.

HARDING HALL IS A POPULAR PLACE

Harding Hall during the past year has been the scene of numerous enjoyable activities and has again proven itself a source of great pleasure to the employees, as indicated by the fact that 10 dances were held there last year; numerous meetings by the several organizations connected with the Cafeteria and Recreation Association, including the United Veterans, the Orchestral Association, and the baseball clubs; meeting and exhibition arranged by the American Institute of Graphic Arts; the celebration of the sixty-fifth anniversary of the establishment of the Government Printing Office; exhibit by the Smithsonian Institution on "How Prints are Made"; Memorial Day exercises under the United Veterans of American Wars; and the banquets already mentioned.

We entertained at our Christmas entertainments approximately 2,200 children of employees of the Government Printing Office at a cost of $604.41. This entire cost was borne by the Government Printing Office Cafeteria and Recreation Association, and no part of it was collected by subscription as was heretofore the practice.

In connection with the entertainments held in the Government Printing Office on the 30th of May and on the occasion of the sixty-fifth anniversary of the Government Printing Office, you are informed that the Government Printing Office Cafeteria and Recreation Association paid for the services of the quartet. This has been the practice of the cafeteria association in the past, as it constitutes a recreational feature for the entire personnel of the office. The association is always glad to meet the bills incurred by any recreational feature benefiting all of the employees of the office.

The bowling association was conducted for the past year in an unusually satisfactory and efficient manner. Last season 59,362 games were rolled on our alleys. With the price charged in the Government Printing Office for bowling, we do not expect or even wish to make a great surplus. Our net surplus at the end of the last bowling year amounted to $637.23, out of which it was necessary for us to pay $332 for the planing, scraping, varnishing, and the installation of side flare plates, and $157.83 for new pins and supplies.

We have an office league which bowls at night, and a night league to bowl in the afternoons will be started when the full night force is organized. We are very proud of the fact that we now have an office team in the District Bowling League, the strongest in the city.

During the past year several applications have been received from outside organizations, teams, and Government departments for the use of our bowling alleys, but we have had to refuse them on account of our inability to accommodate them and the regulations of the association, which do not permit the use of these alleys to other than Government Printing Office organizations.

Last year the association conducted a candy sale for the employees of the Government Printing Office during Christmas time, resulting in the employees purchasing at a greatly reduced cost more than 5,000 pounds of candy at a net surplus to the association of about $300. This surplus along with that made in the cafeteria during the month of December more than defrayed the expense of the children's Christmas entertainment.

ANNUAL EXCURSION WELL ATTENDED

Our annual excursion on July 29 to Chesapeake Beach met with its usual good success and was attended by approximately 1,400 people. This organization reaped a net profit of $231.25 from the sale of railroad tickets. Under the

law we are not permitted to reduce the price of a railroad ticket. As mentioned in my last year's report, this surplus is utilized for the purchase of trophies for the athletic events and other expenses the following year. The usual athletic events were staged, and, according to the custom adopted year before last, punch was furnished everyone free.

The Government Printing Office Cafeteria and Recreation Association was called on to assist in effecting a satisfactory collection for the purpose of purchasing veterans' service tablets to be placed in this office in honor of the employees who left to serve with the armed forces during the World War. By resolution of the general committee, this association guaranteed to make up the difference between the amount donated by the employees and the actual cost of the tablets. The original collection from the employees amounted to about $1,600, and the cost of the tablets $1,948. The deficit was made up by permitting the members of the association, who so desired, to donate their cafeteria loans to the veterans' service tablet fund. This was ample to take care of the purchase of tablets and, in addition, buy two flag standards.

We were successful in the past year in proving to the Board of Tax Appeals that under the law we should not be adjudged a taxable organization and were relieved of the burden of paying an income tax. This reaped a net saving to the association year before last of about $212 and of probably a greater saving on the past year's net. This was quite an item in our favor and necessitated a controversy of about six months between the Bureau of Internal Revenue, the Board of Tax Appeals, and a committee of the board of directors of the Government Printing Office Cafeteria and Recreation Association.

Both baseball teams of the Government Printing Office met with success in their respective leagues this year, the colored team winning the championship and the white team winning second place. Both of these teams were awarded "loving" cups, which are now in our trophy cabinets in Harding Hall. We are very proud of what the baseball teams have done, especially since they have come under the jurisdiction of our association. They have not only come out on top but have been self-supporting.

The orchestra has again during the past year played an important part in the entertainment of our employees through the rendering of concerts in cool weather each Friday during luncheon periods for the employees and has added to the enjoyment of our special programs incident to exercises in connection with our national holidays, the Government Printing Office anniversary celebration, the Pan American Congress of Journalists, etc. This important part of our organization has always been willing to assist in every manner in the entertainment of our employees.

ENTERTAINMENTS IN HARDING HALL

Activities in Harding Hall are generally supervised by Mr. William D. Skeen, vice president of the Cafeteria and Recreation Association, and the employees are especially indebted to him for arranging the delightful Christmas entertainments. These entertainments for the children are given annually. The hall is beautifully decorated for the occasion, which includes a program of music and vaudeville, presents for all from the big Christmas tree, and suitable refreshments in the cafeteria.

In addition to the numerous dances, Mr. Skeen's report of events in Harding Hall during the year includes the following:

1925

December 10: Meeting, and exhibition of "Fifty books of 1925 and examples of commercial printing." The Public Printer made the address of welcome. The principal address, "The commercial value of beauty," was delivered by Mr. Harry L. Gage, of the American Institute of Graphic Arts. Music was furnished by the Government Printing Office orchestra. This exhibit was broadcasted by the Public Printer through station WRC, who extended an invi-

tation to the public to view the same, Harding hall being open for the purpose from 10 a. m. to 10 p. m.

December 29 and 30: Christmas entertainment for the children of the employees. About 2,000 children attended and were entertained with vaudeville, moving pictures, and a tableau, after which each child was presented with an appropriate toy and escorted to the cafeteria, where ice cream and cake were served; an elaborate Christmas tree was placed in the hall with electric railway, etc. The hall was open to the employees and their families and friends on the evening of December 31, when the tree and decorations were illuminated.

1926

January 27: Meeting of the Washington Club of Printing House Craftsmen.

March 4: Sixty-fifth anniversary of the establishment of the Government Printing Office.

April 7: Buffet luncheon to the members of the First Pan American Congress of Journalists. Music by Government Printing Office orchestra; special decorations with flags of Pan American countries; committee assisted by young ladies of the Government Printing Office.

April 12: Apprentice meeting. Speakers, Mr. Norman T. Munder, of Baltimore, Md.; Mr. August Deitz, of Richmond, Va.; and Mr. Bert Bair, of the Government Printing Office. Fifty-five apprentices were presented with nickel-plated composing sticks.

April 21: Meeting of Association of Government Building Superintendents. Addresses by Mr. H. L. Crisp, president; Mr. John Greene, Deputy Public Printer; Lieut. Col. U. S. Grant, 3d; music by University of Maryland Glee Club; banquet served by the Government Printing Office cafeteria.

May 1–31: Exhibition of "How prints are made," by the division of graphic arts of the Smithsonian Institution and National Museum.

May 29: Memorial Day exercises under auspices of United Veterans of American Wars. Address by Col. Hanford MacNider, Assistant Secretary of War; music by Government Printing Office orchestra. Flowers contributed by employees of the office were taken to Arlington Cemetery by veterans' committee.

May 29: Banquet, entertainment, and dance by district meeting of the International Association of Printing House Craftsmen. Toastmaster, John J. Deviny; address of welcome by Public Printer; greetings by Director of the Bureau of Engraving and Printing, Alvin W. Hall; music by Dagmoir Orchestra.

LARGE SUBSCRIPTION TO THE RED CROSS

In addition to supporting liberally their own activities, the employees of the Government Printing Office are also generous contributors to numerous other public charities and welfare organizations. Their annual enrollment for the American Red Cross keeps this office near the top of all the Government establishments subscribing to that great fund. For the 1926 roll call, the employees of the Government Printing Office responded with a contribution of $1,214.40 to the District of Columbia Chapter of the Red Cross, which, in proportion to number of employees, was greater than the subscription of any other Government establishment in Washington and exceeded by $70 the sum given by this office last year. Gen. John A. Johnston, director of the tenth annual roll call of the Red Cross, in thanking the employees of the Government Printing Office for their splendid enrollment, wrote the chief clerk, under date of December 17, 1926, as follows:

Please accept our grateful acknowledgment of the splendid number of enrollment memberships in the District of Columbia Chapter and the incidentally important aggregate of $1,214.40.

This is a splendid showing of interest in your department and merits our highest recommendation and appreciation.

Last year we stood second in ratio of membership to population and we hope first this year in the entire country. Your large number of memberships will go a long way toward maintaining this.

VETERANS' SERVICE TABLETS UNVEILED

The most notable event of the year in Harding Hall was the unveiling of the veterans' service tablets in honor of the 338 employees of the Government Printing Office who served with the armed forces of the United States in the World War and in memory of the 10 employees who made the supreme sacrifice. More than 3,000 employees attended the two exercises, which were held on November 19, 1926.

Col. Theodore Roosevelt, former Assistant Secretary of the Navy and one of the founders of the American Legion, was the principal speaker at both programs, which were presided over by Capt. Ellwood S. Moorhead, jr., production manager of the Government Printing Office. Music for the occasion was furnished by the Government Printing Office orchestra and the Columbian Quartette, of Washington. An enjoyable feature of the orchestra selections was its concluding number, "The Soldier's Good-Night," composed by Mr. E. C. Hoopes, a member of the orchestra, who personally directed the playing of his excellent music. The hall was elaborately decorated with the national colors, and the handsome bronze tablets attractively displayed on the stage, making altogether an inspiring scene.

Appropriately illustrated and printed programs were issued containing the names of the veterans thus honored, the service of those who died in the war, a résumé of the patriotic record of the Government Printing Office during the Civil, Spanish-American, and World Wars, and appropriate memorial verses.

The idea of the veterans' service tablets was first suggested by the Public Printer three years ago and met with the hearty approval of the employees of the Government Printing Office, who contributed approximately $2,000 for the purchase of the tablets. A veterans' committee, consisting of Capt. Ellwood S. Moorhead, jr., production manager; William J. Cassiday, assistant purchasing agent; and J. Thomas Ford, assistant chief clerk and president of the Cafeteria and Recreation Association, was selected to arrange for procuring and unveiling the tablets.

Exhaustive searches were made of the records of the Government Printing Office, the War and Navy Departments, and the Veterans' Bureau to secure and verify the records of employees who left the Government Printing Office to enter the armed forces of the United States during the World War. More than 1,500 records were examined and 1,000 letters written in conducting this research. The verified list contains the names of 338 employees who served in the World War, and it is believed that this roll is complete and correct according to the Government records. The names are inscribed on two artistically designed solid bronze tablets, 44 by 48 inches in size and weighing 420 pounds each. The tablets cost $1,948.

RECORDS OF THE WORLD WAR DEAD

The war records of the three employees who were killed in action are as follows:

Joseph V. Cullen enlisted May 20, 1917, as private with Company C, Third Infantry, District of Columbia National Guard, in the Federal Service; sailed from the United States December 15, 1917; was promoted to second lieutenant, Infantry, July 9, 1918, and served in that grade with Company M, and later with Company B, One hundred and second Infantry, Twenty-sixth Division, in the Rupt and Troyon defensive sectors (Lorraine), the St. Mihiel offensive, and in the Meuse-Argonne offensive until killed by shellfire October 28, 1918, in the Verdun area.

Charles Addison Rhett Jacobs enlisted in the Marine Corps December 16, 1917. He embarked on board the U. S. S. *Henderson* March 13, 1918, and arrived in France March 27, 1918; served with the American Expeditionary Forces in France from March 27, 1918, to October 3, 1918; participated in active operations against the enemy in the Chateau-Thierry sector (Belleau Wood) June 6 to 29, and in the Champagne offensive (Blanc Mont) October 1 to 3, 1918. During his service in the Marine Corps he attained the grade of corporal. He was killed in action October 3, 1918, while serving with the Ninety-sixth Company, Sixth Regiment, in the Champagne offensive.

William H. McKimmie enlisted April 28, 1918, at Washington, D. C. He sailed from the United States July 9, 1918, and served in France as corporal with Company H, Three hundred and sixteenth Infantry, Seventy-ninth Division, in the defense of the Avocourt and Troyon sectors (Lorraine), and in the Meuse-Argonne offensive until killed in action November 5, 1918, near Verdun.

The records of the seven other employees who died in the service of the armed forces of the United States during the World War are also included herewith:

Haywood Campbell enlisted August 18, 1917, at Washington, D. C. He sailed from the United States June 30, 1918, and served in France as private with the Three hundred and twenty-fifth Field Signal Battalion, St. Aignan, until taken ill with pneumonia July 22, 1918, which resulted in his death on July 26, 1918, at Camp Hospital No. 27, Headquarters, Services of Supply, Tours.

Joseph James Jackson enlisted January 12, 1918, at Washington, D. C., and served as a private with Company C, Three hundred and twenty-fifth Field Signal Battalion, at Camp Sherman, Ohio, until his death June 12, 1918, of diabetes and nephritis.

Aubrey Allen Mayo enlisted May 24, 1918, at Fort Oglethorpe, Ga., and served as private (first class) with Company D, Forty-sixth Infantry, at Camp Sheridan, Ala., until his death October 25, 1918, of pneumonia.

Frank E. Newton enrolled in the United States Naval Reserve Force and was placed on active duty April 3, 1918. He was assigned to the U. S. S. *Triton* at the navy yard, Washington, D. C., where he served until February 28, 1919, when he was assigned to the United States naval hospital, in this city. He died March 6, 1919.

George Pate Pipkin enlisted July 22, 1918, at Norfolk, Va., and served as a private with Battery D, Thirty-eighth Regiment Coast Artillery Corps, at Fort Hamilton, N. Y., until his death September 30, 1918, of acute cardiac dilatation.

Frederick Taylor Remler enlisted July 15, 1918, at Washington, D. C., and served as private with Company M, Fifth Training Regiment, Engineers, at Camp A. A. Humphreys, Va., until his death on September 28, 1918, of pneumonia.

Leo Simmons enlisted August 2, 1918, at Washington, D. C., and while serving as corporal with the Thirty-third Construction Company at the Air Service Flying School, Langley Field, Hampton, Va., died on October 9, 1918, of pneumonia.

The two handsome tablets bear the following names under the inscription—

"IN HONOR OF THE EMPLOYEES OF THE GOVERNMENT PRINTING OFFICE WHO SERVED WITH THE ARMED FORCES OF THE UNITED STATES IN THE WORLD WAR AND IN MEMORY OF THOSE WHO MADE THE SUPREME SACRIFICE"

Thomas J. Abrams
Walter S. Ahlberg
Ralph W. Alderman
Roscoe Alley
Philip S. Alverson
Clifton C. Anderson
William J. Anderson
George W. Andree
Malcolm J. Annadale
Lee Roy Ashcraft
Louis Atkins
Charles L. Banks
George F. Banks
Nealy Bean
Andrew Bell
John W. F. Bell
Ulysses G. Bell
William F. Bell
Louis J. Benner
George N. Berry
Leslie J. Blackwell
Thomas E. Blakely
Herbert R. Blakley
Frank B. Bloom
Robert J. Bowler
John J. Boyd
William D. Boyd
Christopher J. Brady
Vivian A. Brayboy
Edward H. Brian
Fred H. Brigham
William E. Brockman
Arthur C. Brooks
Charles P. Brooks
Robert E. Brooks
Francis J. Brothers
Clarence E. Brown
Julius M. Brown
Roger N. Browne
Harry M. Bryan
Herbert A. Bullinger
William E. Burch
Eugene T. Butler
Fred R. Byrd
Don O. Byron
Leo T. Callahan
Haywood Campbell[1]
Louis J. Campbell
Isaac M. Capayas
Richard N. Carter
William J. Cassiday
Will H. Chase
Patrick J. Clancy
William M. Clark
Walter A. Clarke
Joseph A. Cofone
Samuel S. Cohan
Morris Cohen
Jeremiah M. Colbert
Arlington Comstock
Richard A. L. Contee
William W. Cook
Charles H. Cooksey
William E. Cooney
Bernard W. Costolow
John J. Cournyn, jr.
James P. Cromwell
Joseph V. Cullen[2]
Lawrence B. Curry
Eugene A. Dandridge
Charles Davis
Charles H. C. Dickinson
John B. Dieste
Vernon O. Dinger
Herbert Dixon
John S. Donohue
Joseph P. V. Dorsey
George W. Downing
Burton W. Doyle
Albert Y. Dreisonstok
Henry Y. Dreisonstok
Robert F. Droney
Walter C. Duckett
Albert L. Duerr
Raymond J. Dugan
Philip D. Duppins
Thomas Eatman
Minter G. Edwards
George R. Erler
Dewey Esaias
Joseph W. Evans
Walter M. Evans
Henry P. Ewing
James E. Fahey
Isadore Feldman
John P. Fersinger
George A. Fischer
Joseph B. Fitzgerald
Charles M. Flanagan
Joseph S. Fletcher
Lawrence O. Fletcher
Charles H. Flynn
Frank X. J. Fogarty
J. Thomas Ford
William H. Ford
George W. Fountain
Ernest C. Frazier
George W. Freas
J. Anthony Gallagher
Albert W. Gates
Leon Gatewood
Henry W. Gawlis
Levi Gee
Jacob Z. Gehres, jr.
Walter H. Geisel
Herbert C. George
Israel Gewirz
Myer Gewirz
James R. Gibson
Joseph A. Goetzinger
Donald W. Graffius
Philip W. Green
George H. Greenfield
Byron E. Hager
Curtis T. Hall
James W. Hall
William A. Hallisey
Matthew V. Halloran
Floyd H. Hamilton
Robert F. Hanner
Joseph B. Harding
William J. Harrover
Frederick B. Hausmann
Merrian C. Hayson
Albert Helms
John A. Herbert
Samuel Hershowitz
Daniel S. Herzog
James E. Hill
Louis F. Hitselberger
Edward C. Holmes
Elbert A. Holmes
Carl E. Hoskens
William K. Houser
W. Brooke Hunter, jr.
William H. Hunter
Patrick A. Hurley
Frederick A. Hurt
Leopold Hutz, jr.
Harry F. Ismer
Joseph J. Jackson[1]
Joseph S. Jackson
William S. Jackson
Charles A. R. Jacobs[2]
Harry M. James
John I. James
John M. Jeffries
Edward T. Johnson
James C. Johnson
James R. Johnson
William A. Johnson
Luther W. Jones
Melvin J. Jones
Urban Jones
Walter W. Jones
William A. Jones
Michael J. Keating
William J. Keefe
Charles Kershenbaum
Cornelius A. King
Ellis R. King
Bernard J. Kober
Charles A. Kraft
Jesse A. Lednum
Josephus T. Lee
Harold J. Lesh
Albert H. Lester
James B. Lomack
Charles R. Lucas
Morrill C. Lucas
Townsend M. Lucas
William J. Manning
Vincent S. Marion
George S. Marshall
Arthur Mason
E. Richard Mason
Leon C. Massey
John W. Mattingly
Elmer N. May
Aubrey A. Mayo[2]
Patrick H. McCarthy
James M. McConnell
Philip F. McCullough
Thomas J. McGuire
George L. McKee
Francis O. McKenna
William H. McKimmie[2]
William A. McNeal
Essie B. McTeer
Paul H. Mertens
Walter R. Metz
Stephen O. Mills
John H. Mohl
Homer M. Mohr
George A. Monagon
Mark M. Moore
Raymond R. Moore
Sherman Moore
Ellwood S. Moorhead, jr.
Irl R. Morgan
Leon J. Morris
Matthew D. Morrissey
Andrew Mortensen
Jacob S. Murden
Bartholomew V. Murdock
John A. Murphy
William A. Murphy
Leon E. Murray
Jesse L. Nave
John O. Nelson
Edward M. Nevils
Meigs E. Newkirk
Edward A. Newman
Frank E. Newton[1]
George L. Norton
Joseph L. O'Connor
Harry E. Ohlsen
Ashby J. O'Meara
Percival K. Parlett
James M. Patterson
Britton R. Pearce
Leon A. Peterson
William E. Pinkston
George P. Pipkin[1]
Alexander W. Plater
Frank P. Platz
Robert E. Poe
Charles A. Potter
John D. Powers
Clarence W. Preston
John L. Price
Oliver C. Prosser
Clarence E. Rambo
Herbert S. Rand
John L. Randall
John B. Rauch
Charles P. Reckert
Hershell S. Reese.
Joseph B. Reid.
Frederick T. Remler[1]
William Reutershan
Francis A. L. Reynolds
Alonzo L. Rhodes
Harry D. Richardson
Julian V. Richardson
William W. Richardson
Samuel Robinson
John H. Rollman
George W. Rowland
George F. Roye
Harry J. Russell
Daniel J. Ryan
Carl J. Sandstrom
Eugene F. Saunders
Ottawa J. Saunders
Philo Saunders
James G. Sayles
Henry R. Schaake
William J. Schnabel
Chester B. Schuyler
John H. Scott
Levi Scott
Paul A. Sebastian
Neal H. Settle
Stanley A. Shaner
Samuel Shapiro
John W. Sheedy
Thomas I. Sheridan
Edward H. Shuman
Charles Silberman
Leo Simmons[1]
Chester B. Simms
Leslie I. Sirbaugh
Innis R. Skinner
David Smith
John M. Smith
Sidney Soloman
Vernon C. Spriggs
Albert C. Stanley
Clarence A. Steptoe
John C. Sterling
Benjamin F. Stewart
George J. Stewart
Emory B. Sudler
Anthony W. Suess
John L. Sullivan
Richard C. Sullivan
James H. Sweeney, jr.
Norval K. Tabler
William A. Tancil
Alvyn A. Tate
Talfourd A. Taylor
Hynes E. Terry
Henry Thomas
Victor J. Thompson
Herbert S. Tolson
Charles J. Tracy
Mason J. Trent
Lawrence W. Trumbull
Louray Tyson
Louis C. Vogt
Stephen Walker
Horace B. Wallace
Arthur L. Washington
Neville R. Waters
Ernest A. Watson
Harry C. Wells
Herbert R. Weston
Harry C. Whalley
Gerald L. Whelan
Edgar White
Walter White
William A. White
Henry W. Whitlow
Edgar W. Whitman
Ernest Wickstrand
James J. C. Wilkerson
Robert A. Williams
Herbert Willis
James Wilson
Theodore F. Wilson
William T. Windsor
Claude O. Wood
William E. Wood
George W. Wynn
Thomas L. Wynne
Charles R. Yates
John H. Yates

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[1] Died in the service.

[2] Killed in action.

After the unveiling ceremony in Harding Hall, the bronze tablets were permanently placed in the marble wall at the head of the grand marble stairway from the first floor of the Government Printing Office. There, on either side of the imposing marble bust of Benjamin Franklin and flanked by beautiful silk flags, all brilliantly illuminated, the tablets have been enshrined and will always remain the altar of patriotic devotion for the employees of the Government Printing Office.

It is interesting to note that before this very place there rested overnight the mortal remains of one of the veterans, Charles A. R. Jacobs, who made the supreme sacrifice in France. The young hero was carried to his last resting place in Arlington after a most imposing funeral service in the Government Printing Office on August 31, 1921, attended by the Secretary of the Navy, Maj. Gen. John A. Lejeune, and other high-ranking officers and comrades of the Marine Corps. So it is that the tender memories of the employees have hallowed this same place by inscribing there in enduring bronze the names of their fellow employees who fought in the great cause of civilization.

There are now employed in the Government Printing Office 528 veterans of American wars, including one who served in the Civil War. Of this number of war veterans 116 are employees who left to enter the armed forces of the United States during the World War and returned to the service of the Government Printing Office after the armistice.

TABLET PLACED ON "PERSHING" LINOTYPE

There was another ceremony in the Government Printing Office during the year that honored the service of printers in the World War. It was the formal placing of a bronze tablet on the famous linotype machine which rendered distinguished service with the printing unit at General Pershing's headquarters in France throughout the war. This machine on its return from service overseas was obtained from Camp Humphreys by the Public Printer, who accorded it a place of honor in the Government Printing Office as a tribute to the war work of the printing industry.

The history of this machine was related in the Public Printer's report last year with the observation that "some day a bronze plate recording its war record will be placed on the Pershing machine, so that its distinguished military service may never be forgotten." That statement evidently attracted the attention of the International Association of Printing House Craftsmen, its board of directors generously offering to donate a suitable tablet for the Pershing machine.

This patriotic offer was promptly accepted by the Public Printer, and accordingly an attractive bronze tablet was presented and placed on the historic linotype, which is greatly treasured by the Government Printing Office. The tablet bears the following inscription:

"IN · HONOR · OF · A · LINOTYPE
THAT SERVED ITS COUNTRY ON
THE BATTLEFIELDS IN FRANCE
. . . THERE · UPON A THROBBING
MOTOR TRUCK · MID SHOT AND
SHELL · THIS MACHINE TYPED
GEN. PERSHING'S COMMANDS TO
AMERICA'S VICTORIOUS ARMY"

Beneath the inscription and between the seals of the Government Printing Office and the craftsmen's organization the tablet also bears this statement:

"THIS TABLET HAS BEEN PLACED HERE BY
THE INTERNATIONAL ASSOCIATION OF
PRINTING HOUSE CRAFTSMEN · JULY · 1926"

The tablet was unveiled on the Pershing machine in the linotype section of the Government Printing Office on July 24, 1926, at which time there were present the following officers of the International Association of Printing House Craftsmen, who officiated on behalf of that organization in presenting the tablet to the Public Printer: President, George A. Faber, of Milwaukee; first vice president. Ernst C. Dittman, of Chicago; second vice president, E. H. Kurrle. of Toledo; secretary, L. M. Augustine, of Baltimore; treasurer, Harvey H. Weber, of Buffalo; past president, William A. Renkel, of New York; past president, John J. Deviny, of Washington; and district representative, George Ortleb, of St. Louis.

CEREMONY HONORS WAR MACHINE

The following interesting account of the ceremony was published in the Craftsmen's Monthly Bulletin for August, 1926:

On Saturday, July 24, before going to the convention, the board of governors of the International Association met at Washington, D. C., to unveil the tablet placed on the linotype machine which was used at General Pershing's headquarters in France during the World War. President George A. Faber, on behalf of the International, formally presented the tablet to the United States through Hon. George H. Carter, Public Printer, who accepted it in a very appropriate manner.

Among those present was Maj. Wallace W. Kirby, who was instrumental in securing the machine from a small French village and placed it on a motor truck where it was operated during the war while bullets and shells were falling on all sides.

Mr. Carter received quite an ovation when he stepped forward to accept the tablet and gave a brief history of the machine and how it was operated under such handicaps as stated above. He voiced his pride in the action of the craftsmen in thus paying tribute to its faithful war service.

James M. Kreiter, linotype operator, who was at headquarters in France for two years, and who operated the machine during that time, recited several personal experiences while doing so.

Those present during the unveiling ceremonies, besides the International Board, were Norman Dodge, vice-president and general manager of the Mergenthaler Co.; Walter H. Savory, personal representative of the vice president of the same company; Fred C. Grumman, manager New York Sales Agency; Charles S. Gunn, Washington agent; and F. T. Denman, assistant manager, publicity department, of the Mergenthaler Co.; Earl H. Emmons and wife, of New York; George Ortleb, district representative of the International; John J. Deviny, president of the Washington Club; and many of the members of that club.

The ceremonies were very carefully arranged by Mr. Carter and his assistants, and were executed in the usual smooth manner of all functions in the Government Printing Office.

After the presentation was over the board and visitors sat down to a luncheon in one of the private dining rooms and left immediately after to attend the opening hospitalities of the Philadelphia Club.

The tablet is a very fine zinc etching, unusually deeply etched to give the effect of raised letters, and was made in its entirety by members of the Baltimore Club of Printing House Craftsmen through the cooperation of the Day Printing Co., Alpha Photo-Engraving Co., and the Shane-Beever Co., electrotypers. It is very unique and reflects great credit on the designers. The wording on the tablet was the suggestion of Public Printer Carter.

The Pershing machine is now in daily use in the Government Printing Office, but it stands out conspicuously among all the 149 linotype machines, proudly bearing at its head the handsome bronze tablet and the flag which it served so notably on the battle fields in France. The machine is again operated by Corpl. James M. Kreiter, who had set on it many of General Pershing's orders during the war and is now a regular operator in the Government Printing Office.

PAN AMERICAN JOURNALISTS ENTERTAINED

Another notable event of the year was the visit of the members of the First Pan American Congress of Journalists, who were the guests of the Government Printing Office on April 7, 1926. About 200 journalists and guests from Central and South America and the United States attended the reception in Harding Hall and were there tendered a buffet luncheon by the Public Printer and other officials of the Government Printing Office.

The hall was elaborately decorated with the flags of all the Pan American countries and the tables ornamented with very pretty plants, much to the delight of the guests. The luncheon was served by a committee of office young ladies, who also acted as charming hostesses for the occasion. Music was provided by the Government Printing Office orchestra, which was highly complimented by the visitors.

After a brief address of welcome in Spanish by the Public Printer, the visitors were taken in groups on a tour of the office and spent an hour or more inspecting the machinery and various operations, from the printing of postal cards to the publication of the Congressional Record.

An artistic souvenir booklet of 24 pages, descriptive of "A Trip Through the United States Government Printing Office" ("Una Visita a la Imprenta del Gobierno de los Estados Unidos"), was printed in both the English and Spanish languages and presented to each visitor with the compliments of the Public Printer. The booklet, with its neat cover tied in silk cord of the national colors, was highly appreciated by the Pan American journalists.

The visit to the Government Printing Office was the opening feature of the entertainment of the First Pan American Congress of Journalists, which met in Washington April 7–13, 1926. The privilege of providing this feature of the program was accorded the Public Printer through the courtesy of Director General Rowe and Mr. Franklin Adams, counselor of the Pan American Union, who assisted in the reception of the distinguished guests at the Government Printing Office.

In formally thanking the Government Printing Office for the entertainment given the Pan American journalists and their guests, Director General Rowe wrote the Public Printer, under date of April 7, 1926:

> I want to take an early opportunity to thank you for the very hospitable reception which you tendered to the members of the Pan American Congress of Journalists. They deeply appreciated your courtesy and I can assure you that you have done a real service to Pan American relations.

EXHIBIT AT SESQUICENTENNIAL EXPOSITION

The Government Printing Office made a very creditable display of its products at the Sesquicentennial Exposition in Philadelphia, June 1 to December 1, 1926. Although not invited to participate in the Government exhibit until shortly before the exposition opened, the Government Printing Office succeeded in preparing an interesting exhibit, which was the first to be installed and ready for inspection in the Government building when the exposition was opened to visitors.

The exhibit consisted of eight cases containing samples of artistic printing and binding, and a number of publications of historic value, such as the President's personal copies of his addresses bound in full morocco, and rare old copies of the proceedings of Congress. The exhibit also showed the method of repairing and preserving old manuscripts and documents for the Library of Congress and the State Department, and the process of color printing. The details of plate making and photo-engraving were depicted with numerous specimens, including electrotypes, stereotypes, matrices, lead-molded plates, half tones, and zinc etchings. The testing section also showed samples of standard materials used in printing and binding and exhibits of its laboratory tests of type metals, paper, inks, dyes, twine, and book-covering materials.

Through the courtesy of Admiral Stickney, United States Commissioner to the Sesquicentennial Exposition, the Government Printing Office exhibit was given one of the best and most central locations in the big Transportation Building along with other Government exhibits. It attracted much favorable attention from the many visitors who were impressed with the extensive variety of work done by this office. Even the handsome mahogany cases used for displaying the printing exhibit were the product of the carpenter shop of the Government Printing Office.

Besides being the first exhibit ready for the opening of the exposition, the Government Printing Office was also the first Government exhibitor to pack up and remove its display at the close of the exposition, thereby receiving the compliments of the commission for the prompt transaction of business.

The Sesqui exhibit is now on display in Harding Hall where it may be viewed by visitors, who are always welcome to inspect the Government Printing Office.

AWARDED GOLD MEDAL OF HONOR

The jury of awards of the Sesquicentennial International Exposition has awarded a gold medal of honor to the Government Printing Office for its exhibit at Philadelphia. In a formal notification of this award, the secretary of the executive jury of awards wrote under date of December 13, 1926:

> This is to notify you that the International Jury of Awards of the Sesquicentennial International Exposition has awarded the United States Government Printing Office a medal of honor for collective exhibit illustrating the development and activities of this branch of the Government service. A well selected and admirably arranged and instructive display.
>
> Diplomas of award are being prepared and it is hoped to have them ready for distribution during the early part of the coming year.

The Government Printing Office has also received a diploma for participation at the typographical school exhibits of the Second International Book Exposition, which was held in Florence, Italy, in 1925, under the patronage of His Majesty the King of Italy. The diploma was signed by the president general and the director general of the Florence Exposition. It has been properly framed and hung in the Public Printer's office, along with medals and diplomas from the Panama-Pacific International Exposition at San Francisco in 1915 and the Paris International Exposition in 1900.

The exhibit at Florence consisted of 12 display boards mounted with specimens of Government printing and the work of the apprentice school in the Government Printing Office. About 50 handsomely bound books were included in the display of United States Government publications. Invitation to participate in the International Book Fair at Florence came from Mr. Raffaello Bertieri, of Milan, the commissary in charge of the exhibition for printing-art schools. The exhibit was transported to and from Florence through the courtesy of the international exchange service of the Smithsonian Institution, and the interests of the Government Printing Office were well taken care of by the American consul at Florence, Mr. Joseph Emerson Haven.

Another exhibit was made by the Government Printing Office at the Industrial Exposition of the Washington Chamber of Commerce in March, 1925. This exhibit consisted of a display of Government printing and binding, specimens of platemaking and photoengraving work, and samples of Government standards of printing material prepared by the testing section of this office.

KEEPING PACE WITH PRINTING PROGRESS

To keep informed of the progress of printing and allied industries and to secure for the Government the benefit of the latest and best methods used by the most successful representatives of the trade, the Public Printer and other officials of the Government Printing Office have inspected numerous printing and binding plants in the United States and have conferred with many leaders of the printing industry, who in turn have visited the Government Printing Office to study its equipment and methods of production. This broadening experience and the exchange of ideas have been invaluable in the rehabilitation of the Government Printing Office and have provided the Government with a most efficient organization and the best equipped printing plant in the world.

The Public Printer, accompanied by the chief of tests, Edward O. Reed, also visited England, Germany, Italy, and France in 1926 to study the condition of the machinery, paper, leather, ink, type metal and plate-making industries and their relation to the progress of printing and binding in those countries. Many large printing and binding works were inspected in Berlin, Hamburg, Leipzig, Munich, Frankfort, Cologne, Dusseldorf, Wurzburg, Paris, Rome, Oxford, London and vicinity. Several large paper mills were visited in Germany and England.

Special courtesies were extended by the heads of the German government printing office (Reichsdruckerei) at Berlin, the French

government printing office (Imprimerie Nationale) in Paris, the Vatican printing office in Rome, and the controller of His Majesty's stationery office in London, the principal of the London School of Printing, the director of the American Institute in Berlin, the officials of the State testing bureau (Staatlichen Materialprüfungsamt) at Dahlem, near Berlin.

STUDY PRINTING CONDITIONS ABROAD

Conferences were had with leading printers, machine manufacturers, paper, leather, and metal makers, and chemists in all the countries visited. Especially gratifying and helpful was the cordial cooperation of the officers of the German Master Printers' Union (Deutscher Buchdrucker-Verein) in Berlin and at their meeting held in Eisenach, also the Federation of Master Printers of Great Britain in London, and the Sationers' Company in London, whose court honored the Public Printer and the chief of tests at their luncheon session in historic Stationers' Hall.

Much useful information was also secured by conferences at the headquarters of the German Printers' Union (Verband der Deutschen Buchdrucker) in Berlin, the Printing Machine Managers' Trade Society in London, the German Employing Printers' Association (Buchgewerbe-Vereins) in Leipzig, the Gutenberg Museum in Mainz, and the German Museum in Munich. The Munich museum contains the most complete and elaborate display of working models of printing and paper-making machinery and of various other industrial arts and crafts to be found anywhere in the world.

Many of the persons visited abroad have at different times inspected the United States Government Printing Office and hold it in high esteem. Unfortunately, space is not available in this report to mention all of them by name, but the Public Printer desires to assure his friends abroad of his sincere appreciation of the many enjoyable courtesies which they extended to him.

The exchange of ideas and information has been most helpful in the operation of the Government Printing Office, which has thus become a laboratory for the printing industry of the world and a leader in the art of Gutenberg, Caxton, Aldus, Garamond, and Franklin.

REPORTS SUBMITTED BY OTHER OFFICERS

Extracts from the reports of the Deputy Public Printer, the production manager, the chief of tests, the superintendent of documents, the superintendent of construction and maintenance, and the medical and sanitary officer are submitted herewith. The Public Printer is indebted to these and the other also excellent reports submitted to him by the principal officers of the Government Printing Office for much of the data upon which his report is based. It is regrettable that space can not be taken to publish all of these reports in full, as they contain valuable information concerning the Government Printing Office and the general printing industry.

REPORT OF THE DEPUTY PUBLIC PRINTER

The keynote of Government Printing Office activities for the fiscal year closing June 30, 1926, judging from reports by the heads of the various divisions, is "economy, efficiency, and cooperation." From every section reports come filled with innumerable instances of sensible economy; of waste turned into profit; of greater production with less workers; of full and hearty cooperation between officers and employees, who are equally charged with responsibility—the one of direction, the other of execution—of the great work of reducing to the printed page the words and acts of our Government.

Practically all departments of the office have functioned with reduced forces, yet the quantity of production has increased, and the quality of the product improved. This is indicative of the splendid spirit of mutual helpfulness now pervading the Government Printing Office.

The exhaustive report of the production manager on the operation of divisions under his supervision leaves little on which to comment. The fine spirit of cooperation existing in all the manufacturing units is thoroughly demonstrated in the magnificent reports submitted by the respective officials in charge, an analysis of which shows continued and constantly increasing efficiency and production.

Almost any hour of the workday officials may be seen in conference with the planning division suggesting changes in methods of printing and binding procedure, stock size changed to save impressions, etc., all of which tends to promote efficiency and aid production. This condition was brought about through the Monday conferences established by the present Public Printer. Officials are encouraged to offer recommendations or suggestions that will add to production in any section of the office.

EFFICIENCY DUE TO COOPERATION

If the Deputy Public Printer were called upon to explain the cause for the present high efficiency of the different units of the Government Printing Office, and this includes the clerical as well as the mechanical forces, he would unhesitatingly credit it to the teamwork shown throughout the whole plant, beginning with the Public Printer and extending to all officials and employees of the office. The success of any establishment is entirely dependent upon how thoroughly the spirit of cooperation is absorbed by its personnel. With this condition ever present failure is impossible.

The activities of the night force deal mainly with the work incident to the sessions of Congress. The record established for efficiency is worthy of especial commendation. With this force rests the responsibility of printing the Congressional Record, bills, reports, and documents required by Congress while in session.

An idea of the work accomplished by the night force may be gained from the following: Daily issues of the Congressional Record printed, 175, averaging 76 pages daily for seven months, a total of 13,270 pages, or 1,441 pages more than for any previous session. The figures for bills, joint resolutions, reports, documents, and other congressional printing are about in the same proportion. This work

was done with a smaller force than usual in every section except the proof room, which reported a slight increase in personnel.

ECONOMIES OF PLANNING DIVISION

The report of the superintendent of planning is replete with economies made possible through close supervision in the correct writing of work jackets, to the end that lost motion will be eliminated in the routing of work throughout the plant. When the fact is taken into consideration that in this division from 50,000 to 75,000 jackets are planned and written annually, each jacket possibly calling for from 50 copies to 50,000,000, the necessity for definite written instructions as to size and face of type, color and quality of ink and paper, whether to print from type or with curved or straight plates, the nature of the binding, and the innumerable other operations necessary to the delivery of a well-balanced publication is obvious. The report of the production manager proves how efficiently this division has functioned in terms of dollars and cents. It shows that every facility of the office has been brought into action so that work would be produced economically without in any way reducing the quality of the output.

The same is true of the requisitions review board, which is practically a coordinating branch of the planning division. This board reviews all printing and binding requisitions received for the purpose of submitting to the planning division only such work as is authorized to be printed by law. From the savings inaugurated by this board yearly the necessity for the establishment of such a reviewing organization has been more than vindicated.

The report of the superintendent of printing shows continued efficiency and increased production in all printing divisions.

The 128 gas pots in the monotype section have been replaced by electrically heated pots. This change has not only permitted the removal of the unsightly overhead pipes, but it has also reduced the temperature 8° to 10° in a section that under most favorable conditions is overheated.

Out of a total of 19,586 galleys inspected by the monotype inspector, only 321 galleys were found to contain defective type. This test shows an average casting efficiency of 98.3 per cent—a record, so far as can be ascertained, unsurpassed by any monotype-casting plant in the country.

One of the outstanding features of the printing division is the manner in which type forms are imposed. Through the acquisition of additional twin chases, which make it possible to place twice the number of type pages on a press for each run, there was a reduction of 1,067,338 press impressions, with a saving of $3,844.

GOOD WORK OF TYPE-MACHINE SECTION

Attention is invited to report of the chief of type-machine section. This section looks after the repairs on linotype and monotype composing machines. It not only repairs but in many instances manufactures new parts for the machines. The full value of this section can not entirely be estimated in dollars and cents; the time saved in

being enabled immediately to replace a broken part is frequently of paramount importance. As compared to the estimated cost of the same work if done by contract, a total of $1,475 has been saved in repairs and manufacturing new parts during the past year.

Especial attention is invited to the good work performed by the chief type machinist, who designed and manufactured in his section a matrix-cleaning machine which will clean a set of linotype matrices in 15 minutes with the help of but one employee. Previous to installation of this machine it required the services of one employee four hours to perform the same amount of work and the continuous work of four employees throughout the year to keep matrices in proper working condition. With one employee this machine cleans matrices more thoroughly and saves approximately $5,000 per annum.

The superintendent of platemaking reports substantial improvements in his division. The work of his apprentices is commented on favorably. A total increase of 684,641 square inches of stereotype plates over last year is recorded.

That the presswork division has kept pace with the demands of Congress and Government departments is the report of the superintendent of that division. The installation of new machinery means better product and increased production, and gives this office one of the best-equipped pressrooms in the world. The money order and postal card sections are operating more efficiently with a considerable decrease in expenses. Changes have been made that make the work of these sections more orderly.

The bindery division has more than held its own, although working with a reduced personnel. The amount of rebinding for libraries was unusually heavy, and near the end of the year reached a peak hitherto unsurpassed.

NEW AND MODERN MACHINERY INSTALLED

New and modern machinery has been installed in the different bindery sections during the past year, and orders are out for a number of other machines which are expected to be installed not later than January 1, 1927. The spirit of cooperation between divisions was splendidly manifested the past year and resulted in a better understanding between foremen and a higher conception of results in production, quality, and cost of output. Frequent consultations are held before work is printed, which results in handling the work more efficiently and economically. No serious break has occurred on any bindery machine during the year, and credit for this is given to careful operatives who, due to their thorough attention and regular inspection, maintain the equipment in excellent condition. The superintendent is of the opinion that the value of the testing section to the bindery is probably greater than to any other division in the office.

The report of the chief of tests proves that the testing section is continuing its record for efficiency. In addition to the routine testing of materials used by the Government Printing Office, the chemists are engaged in research work in different lines, and conducting experiments which in many cases have resulted in standardizing grades of materials.

As a result of the investigational work continually being conducted by this section, definite specifications are now used for the purchase of practically all materials regularly used by the office. Thorough investigations have been made relative to the testing and use of ruling inks, dyes, detergents, and glue, results of which have been highly satisfactory.

A complete report was made last year relative to detergents for removing ink from type and plates. This year the subject of detergents for laundry and general cleaning purposes throughout the plant has been under investigation. As a result, trisodium phosphate is now used in the laundry for washing rags and towels, and also for general cleaning purposes such as washing floors, walls, woodwork, cuspidors, etc. The detergent formerly used for washing rags cost $3.59 per tub. By the use of trisodium phosphate the cost has been reduced to $1.55 per tub. As there is an average of 30 tubs per month, the annual saving is over $700.

Especial attention has been given to the correction of linotype, monotype, and stereotype metals. An average of 14 tons of type metal is used daily by the type-casting machines.

TESTING SECTION WORK INCREASED

The work of the testing section was materially increased by Congress in authorizing the Public Printer to furnish to other branches of the Government inks, glues, and other supplies manufactured by the Government Printing Office. Practically all these materials are manufactured under formulas developed by the testing section.

Work in the stores division is reported as being heavy during the past year, and considerable inconvenience is caused by lack of storage room. Two new tiering machines and one crane truck for handling rolls of paper have been installed, which greatly facilitate the work of this section.

The chief of delivery section reports a very busy year. In addition to the usual regular deliveries of departmental and congressional work, there were hauled during the year from the different freight stations in the city 1,013 carloads of paper and 1,032 "less-than-carload lots." The fact that the office paid no demurrage charges is indicative of the efficient work done by this section. Current deliveries (congressional and departmental) amounted to 331 daily, or 103,689 for the year, ranging in weight from 1 to 500 pounds

In addition, 13,411 empty cases were brought from the Bureau of Engraving and Printing for use in making postal-card cases. Among large deliveries are 1,608,465,500 postal cards in 252 shipments, averaging 6,366,926 cards to a shipment, and approximating 2,251,200 pounds, or 1,125 tons.

TRAINING OF APPRENTICES VINDICATED

The decision of the Public Printer to instruct young men in the various trades in the Government Printing Office has been more than vindicated. At the present time the apprentice section includes 174 printers, 10 bookbinders, 1 pressman, 2 machinists, 3 photo-

engravers, 3 electrotype finishers, 3 stereotypers, and 3 electrotype molders, a total of 199. Between July 1 and October 20, 1926, 20 apprentices finished the 4-year course and were promoted to probationary journeymen. It is a pleasure to report that in each instance the young men are proving themselves competent in their respective trades. They have been trained as all-round craftsmen, and can therefore be used in any unit of the trade. The practice of commercial printing plants has become altogether too general to give apprentices training in only machine operating. In a plant like the Government Printing Office it is absolutely essential that the printer should be competent in hand composition and other composing-room work. To meet this requirement, the Government Printing Office training includes hand and job composition, imposing, making-up, estimating, and jacket writing. Not only are the young men meeting the requirements on the composing machines but they are also giving satisfactory service as hand and job compositors, book and job imposers, and in estimating and computing.

The printer apprentices have been of material assistance to all sections, holding copy, reading proof, correcting, imposing, stripping type, and aiding in other related occupations. The 26 apprentices in the platemaking division, machine shop, pressroom, and bindery are reported by foremen as developing into high-class craftsmen. These young men while under instruction have also rendered 43,384 hours of productive labor.

ECONOMY IN SETTING TABULAR MATTER

A change in the interest of economy has been made in the setting of en-quaded spaced tabular matter. The same system used in hand composition of spacing tables was followed upon the installation of composing machines. After making a survey of the whole proposition it was decided that a worth-while saving would result by reducing en-quaded spaced matter to a minimum of 2 points; thus the space between lines on a 6-point en-quaded table will be reduced 1 point; 8-point, 2 points reduction; 10-point, 5 points reduction. This change eliminates the upkeep and use of a 9-point mold and made it possible to obtain satisfactory results from the 8, 10, and 12 point molds that are a part of the office standard equipment. The reduction of space between lines will allow more lines to the printed page in each instance. The reduction in spacing in 6-point octavo pages will allow the addition of 7 lines, or 10 per cent more matter to the page; 8-point page, 9 lines, or 16 per cent; 10-point page, 9 lines, or 20 per cent. This reduction in the number of pages in en-quaded publications will naturally be economically reflected in paper used and in presswork and bindery operations.

It may be of interest to submit the result of an inventory taken August 12, 1926, on storage of live and dead type pages: In pages and on galleys awaiting return proof from departments, 51,912; held for pick-up by order of departments, 101,113; dead, awaiting distribution or remelting, 25,194; grand total, 178,219 pages. On galleys awaiting return of proof or in process of correcting or proof reading, 30,016. The space required for this immense quantity of type taxes the storage resources of the office to the limit.

REPORT OF THE PRODUCTION MANAGER

PLANNING DIVISION

The work in the planning division reflects the material growth of printing necessary to keep pace with the growth of the Nation. As the country grows, the Government activities are bound to increase, and any increase in Government activity necessarily carries the demand for more printing in the nature of blank forms, reports, bulletins, and the numerous other pamphlets and books called for by every branch of the service.

During the past year the total number of requisitions received was 54,074, as against 52,731 for the previous fiscal year—an increase of 1,343 requisitions.

The requisitions review board is closely allied with the planning division in that all requisitions must be passed on before the job is accepted, and the employees of this division are trained to study all requisitions with the view to accept for printing only when the most economical method is determined. The board determines the legality, most economical method, and urgency of the jobs, and the planning division works out the details, such as color of ink, quality and size of stock, how to run one job in combination with other similar jobs from one or more departments, and to save composition, presswork, and bindery operations.

As a result of this close study of all work submitted to this office, 441 requisitions were modified during the past year, effecting a saving to the Government of $52,000.

This saving was made possible by standardizing sizes, substituting cheaper stock without impairing the usefulness of the form, eliminating colored inks, changing style or size of type, numbering and perforating on press at time of printing instead of separate operation in the bindery, eliminating stereotyping or electrotyping, substituting stereotyping for electrotyping in other cases, eliminating round corners and nonessential bindery operations, and numerous other changes of requisitions that are constantly brought to light by study of all printing and binding methods.

Another activity of the planning division is that of furnishing blank paper to the various departments of the Government in this city. A total of slightly more than 5,000,000 pounds of blank paper and envelopes were furnished during the past year, the total cost of which was $447,468.43.

It is conservatively estimated that this resulted in a saving of $45,000 to the departments. The office has been complimented by the users of this paper about the quality furnished and the dispatch with which deliveries are made. Previous to the Government Printing Office taking over the handling of blank paper and envelopes, it was purchased through the General Supply Committee, and at least 30 days was required for delivery; but as practically all grades and sizes are now carried in stock by the Government Printing Office, delivery in most instances can be made immediately if the departments so request.

In addition to the handling of blank paper, in carrying out the provisions of the legislative appropriation act of May 13, 1926, Public, No. 222, this office is now furnishing the departments with various supplies, such as ink, glue, paste, etc., manufactured in this office. A catalogue of articles and prices was issued and circulated July 1, 1926. It is believed this last activity will result in a great saving to the various departments, but the service has not been in effect long enough to make a detailed report.

PRINTING DIVISION

This division has had an unusually busy year. Demands have been made by Congress and by the executive departments that did not seem possible of fulfillment. They have been met, however, with creditable punctuality. This called for constant study to improve and increase the output as well as reduce the cost of production.

The recent increases in wages have been appreciated by the employees, who are, as a whole, showing their appreciation by increasing their efforts to meet the Public Printer's demands to increase production to compensate the Government for this increase. The long-established custom of allowing the employees five minutes for clean-up at the end of the day's work was abolished, and there was no protest from the four thousand and some odd employees, showing their willingness to cooperate toward a more economical administration of the office.

Monotype section.—Moving the three enrolled-bill presses to the linotype section, moving the partition wall between the assembling room and casting room west 12 feet, and the erection of a new locker gallery in Jackson Alley hallway are three important changes in operation and equipment made in this section during the past year.

As all bills are now set in the linotype section, the moving of the three presses has consolidated and greatly facilitated the handling of this class of work. The moving west of the partition wall has made it possible to place the sliding bank into closer proximity to casting machines, resulting in saving of time and travel for the caster men. This latter change has made available 528 square feet of additional floor space for assembling and correcting room, furniture has been arranged in a more convenient way, and four additional galley racks with a storage capacity of 720 document galleys, have been installed.

The new locker gallery in Jackson Alley hallway accommodates 138 lockers, making it possible to keep all lockers off the main floor of this section.

Another change which improves both the working conditions and the appearance of the casting room was the installing of electric metal pots and the removal of the unsightly overhead flues that were necessary with the gas pots. When it is realized that formerly the temperature in this room on a hot summer day reached 110° with the old gas pots, and the highest temperature reached this past summer was 100° on the day the official Weather Bureau temperature on the street was 110°, it can be seen that this change was a decidedly humane one. Of course, greater comfort for the employees means an increased production, so that the Government benefits as well as the employee.

A system for measuring the production of the casting machine was instituted this past year, showing that the average number of ems produced over a period of eight months was 3,858 per hour. As no individual record was ever kept before, there is no way of comparing former production, but it is my opinion that there is at least a 10 per cent increase in production in this section.

The casting room produced 410,123 pounds of rule, leads, and slugs, and 258,606 pounds of type sorts for this office and other departments of the Government. From a total of 19,586 galleys cast during the year, only 321 galleys had to be reset, showing a percentage of quality efficiency of 98.3 per cent.

One of the methods of economical production in this section is planning the run of boxheads. During the past year 7,693 spools for boxheads were rerun on casting machines 31,920 times. This means cutting down expensive composition on boxheads about 18 per cent—a big saving on composition.

With the numerous changes mentioned above and the changing over of all type from 0.050-inch drive to the 0.030-inch drive, and the adoption of a single standard height lead and slug, it is my opinion that this section is better equipped than ever before to handle the great volume of work demanded by both Congress and other Government activities.

Linotype section.—During the past year 24 additional Model 25 linotype machines were purchased. This model machine has proved a much more efficient and economical machine than the old-model machines. This last purchase makes 48 Model 25 machines in this office, a battery of up-to-date machines that could very easily set the type on a large-sized city daily. This number of machines, however, can only produce about one-third of our work. We have 149 slug-casting machines running all the year round during the day hours and about one-half of that number running during the night hours. Forty-one of these machines are constantly working on patent specifications and the Patent Office Gazette. During the session of Congress a nightly average of 60 machines work on the Congressional Record, bills and resolutions, hearings, and reports for both Houses of Congress and the numerous committees of Congress.

I mention the above demands on one of our composing rooms to demonstrate the enormous amount of printing we are called on to deliver. When it is taken into consideration that the composition is only the first step in the course of producing a finished book, it can well be seen that we have to have not only the largest battery of typesetting machines in the world but also large press, bindery, photoengraving, stereotyping, electrotyping, ink-making, and paper rooms to be able to meet the demands of the largest and most active Government of the world.

The day linotype section has been called on during the past session of Congress to spend about 40 per cent of its time on congressional work. During former sessions of Congress the night linotype section was able to take care of all congressional work, but they could not handle all this class of work this year, as Congress ordered considerably more printing than in former sessions.

This big demand necessitated more working space in this section. A gallery was built over the west G Street hallway, which permitted the removal of all lockers from the main floor of this section. Also

two galley racks and five tables with galley racks were installed in this hallway, which gave still more floor space. However, this room is still overcrowded, and the remedy is the closing over of the court between the north and south wings of the main building, now under construction. This, it is believed, will give all the additional space needed.

There has been considerable loss of time in the printing of Congressional Library catalogues due to authors' alterations. These alterations were caused by a lack of uniformity in style, abbreviations, punctuation, capitalization, etc., in the copy.

By order of the production manager, the foreman of the day record section and the referee of the proof section prepared a brief style sheet, showing the various classes of cards and a standard style for them. This was submitted to the Library and approved.

The style sheet is now used by the Library in writing cards. It will mean a considerable saving in composition, proofreading, and correcting.

Hand section.—During the past year a new method was adopted for the training in office procedure for all new compositors, whether emergency or probationary. When a new compositor is appointed he is immediately assigned to the hand section. During his first month's service he is instructed in rules of the office, style, kinds of type, etc., and it is determined in what branch of the composition trade he is best fitted. He is then detailed to the monotype, linotype, or job sections, and the foremen of these sections continue his training. In this way, by the end of the employee's probationary period, the office is able to determine where the employee should work, so that the Government obtains the services for which the employee is best able to make a return for his salary. This also gives the employee a better knowledge of the work of the office as a whole and results in a greater interest in his product.

This section has made great strides in the economical imposition of type forms for press. In 14 outstanding jobs imposed during the past year the number of press impressions was reduced from 1,963,444 to 1,006,722, a reduction of 956,722 impressions. On one of these jobs, by doubling up the plates on insets and pasters, 60,616 impressions were saved, a total reduction on the 14 jobs of 1,067,338 impressions, or a saving in the cost of printing them of $3,844.60.

Job composing section.—During the past year this section received 33,119 jackets, 630 in excess of last year. The improvement in the quality of the work performed in this section is notable.

That job composing is becoming more and more efficient is proven by the fact that at the close of this fiscal year there is a 3 per cent gain as against a 1½ per cent loss the previous year, or a gain of 4½ per cent over last year.

Patents section.—This section is unique in that the principal work it does is started and completed all in the same room. The patent specifications are their principal work, and this work is constantly increasing. During the past year 1,277 more patents were printed than during the preceding year, with an increase of 4,441 pages. The average number of patents printed per week during the past year was 900, as against 600 in former years.

A new Babcock cylinder press has been installed in this section during the past year. This obviates the necessity of sending forms to the

main press section, as all the press work can now be performed in the patents section.

This section was organized October 1, 1925, so no comparison can be made with former years.

Library printing branch.—Previous to the past year this branch was located on the ground floor and in the basement of the Library of Congress. This was a very poor arrangement from both a health and efficiency standpoint.

On orders from the Public Printer a study was made of the work being performed there, with the result that it was found all work pertaining to printing could be performed on the ground floor, eliminating entirely the necessity of employees working in the dark and unhealthy basement.

This layout has also considerably increased the production of the branch, as shown by the fact that during the past year 86,000 titles were set and 15,831,000 cards printed, the largest number ever printed in one year.

An interesting comparison can be made here between the present and 25 years ago, showing the difference between hand composition and also showing how the Library work is increasing. In 1901, with a daily average of 19 employees, there were 70,000 titles set and 5,000,000 cards printed. During the past fiscal year there was an average of 20 employees working daily, and 86,000 titles were set and 15,831,000 cards were printed. An increase of only one employee shows an increase of 16,000 titles and 10,831,000 cards printed.

Another important change instituted and in process of completion is the standardization of the type faces used in catalogue cards with the standard faces used in the Government Printing Office. Since the branch office was established the type faces used in card work have been totally unlike those used in the main office, so that the vast mechanical resources of the Government Printing Office have never been available for Library work in cases of emergency.

Some idea of the magnitude of the undertaking to standardize this equipment may be gained from the fact that there are approximately 66,000 matrices involved, over 25,000 of that number being special characters used in the printing of catalogue cards in approximately 100 languages and dialects. All the job type has also been standardized to conform to the type cast on the monotype in the main office, thereby insuring a constant supply of good type.

Proof section.—The great problem in this section has been to get a sufficient number of skilled readers. We are still below the required number. It is necessary to detail emergency readers daily from the composing room. The Public Printer's suggestion of having a class of employees as copy holders to be trained as readers is heartily concurred in by all officials of the office that have to do with composition and reading. In the opinion of the production manager this is the only solution to this vexing problem. It is a problem of not only this office but throughout the whole craft all over the country. Proof readers should be students of the English language primarily, willing to study in their off hours, to keep informed on current topics, and be a source of information to other employees in the office.

One of the new methods started in this section during the past year was to examine all proofs returned by the various departments of the

Government before proofs are forwarded to the composing sections for correction, with the view to prevent useless correcting. This has the effect of preserving the style and improving the finished product, as well as the more important item of saving to the Government the large amounts which such corrections would have cost.

A small book entitled "Syllabication" has been issued to the readers, saving many trips to the dictionaries. This book was compiled by an employee of the proof section.

Type-machine section.—This is a type-machine repair shop and more than pays for itself by being so close to the machines it serves.

During the past year repairs and new parts manufactured for the monotype machines amounted to $7,887.60. If purchased from manufacturers, the cost would have been $8,869.19, a saving of $981.59. Repairs and new parts for the linotype machines amounted to $4,601.10. If purchased from manufacturer, the cost would have been $5,094.51, a saving of $493.41.

Taking the printing division as a whole, it is my opinion that efficiency is still on the increase. This is evidenced by the whole-hearted way in which all officers of this division discuss their sections and their work with the production manager. There is no let down when they have put into effect some new method; instead, this seems to spur them on to renewed effort to hold down the cost of this the most expensive part of the printing of a book or job.

PRESSWORK DIVISION

This division as a whole shows a gain of 5 per cent as against a 1 per cent loss the previous year.

The policy of the Public Printer of concentrating on machinery improvements in this division during the past year has resulted in the purchase of much more efficient machinery, thereby increasing the mechanical facilities to meet the ever-increasing demands on this branch of the work. The following is some of the new machinery installed during the past year:

The two Hoe web presses have been completed and will be able to take care of the Record for some years to come.

Two Miehle vertical presses and two Miehle pony cylinder presses have been installed.

Five new Miehle cylinder presses replacing five obsolete and worn-out Huber presses. Four of these have automatic feeders.

The three new rotary envelope presses are not limited to printing envelopes, but are capable of working flat-sheet work as well.

Five presses and one slitting machine for manufacturing tabulating cards.

A few of the large jobs run in the main press section are as follows:

	Copies
Money-order applications, two sides	250,000,000
Internal-revenue information	25,000,000
Notice to publishers	20,000,000
Requisitions for stamp stock	1,000,000
Agriculture wrappers	4,000,000
Post-office surplus funds	2,000,000
Registered matter, received and delivered	2,500,000
Navy radiogram blanks	3,000,000
Special-delivery slips	3,000,000
Farmers' Bulletin slips	8,000,000

	Sheets
Post-office special delivery	12,000,000
War Department shipping tickets	2,600,000

Agriculture Yearbook, 1925—79 signatures of 400,807 each, making 8,016,140 impressions of 64-page forms.
Postal Guide, 72 signatures, 2,429,750 impressions.

BINDERY DIVISION

This division for the past year has had little out of the routine tasks and has maintained its usual schedules on regular work. The large outstanding orders such as the Agriculture Yearbook, Postal Guide, income-tax blanks, and Farmers' Bulletins at times required shifting of jobs and help, but never seriously delayed the hundreds of other orders of varying quantity.

The amount of rebinding for libraries has been unusually heavy, and toward the end of the year reached a peak hitherto unsurpassed.

Blank books have also shown an increase, particularly in the large record books required for the United States courts. The call for loose-leaf binders has been more than in previous years.

New machinery purchased and installed in the bindery during the past year is as follows:

In the forwarding and finishing section: Ten book-sewing machines, one continuous trimmer, one case-forming machine, one pamphlet-covering machine, one stamping press, and one case-making machine.

In the ruling and sewing section: One dual L ruling machine, one stripping machine, and two 44-inch cutting machines.

In the pamphlet bindery section: One job folding machine.

In the Library binding branch: One 44-inch cutting machine.

Orders are out for the following machines, all of which will be installed not later than January 1, 1927:

In the forwarding and finishing section: One book-cover printing press, three numbering and paging machines, two book-oversewing machines, one sheet-scoring machine, one forwarding and casing-in machine, one pamphlet-binding machine, one book-sanding machine, two book-sewing machines (straight needle), one leather-skiving machine, one case-cleaning machine, and three gluing machines.

Ruling and sewing section: One perforating machine, one McBee binding machine, one disk ruling machine, three numbering and paging machines, one stripping machine, and one book-sewing machine.

Pamphlet bindery section: One numbering and paging machine, three job folding machines, four double 16-double 32 folding machines, and one continuous-feed stitching machine.

Library binding branch: One book-oversewing machine.

It will be seen by the above program that the bindery as a whole is up to date in its purchase of machinery—far and above the average commercial bindery.

In the ruling and sewing section one of the large orders constantly running is the application for money orders. This calls for 250,000,000 applications, in pads of 500. Another is 5,000,000 shippers' export pads of 100 to a pad and drilled.

In addition, hundreds of other jobs were delivered, large and small, including 12,279,000 copies of various farmers' bulletins.

The Library binding branch is getting along with a much reduced personnel. The past year there were 59 employees, as against 70 employees in previous years. A continued increase in the work is noted. The number of books ripped for this year was 20,561, as against 20,464 last year, an increase of 97 books. The number of books sewed this year was 26,666, as against 24,209 last year, an increase of 2,457. The number of books forwarded this year was 25,028, as against 22,042 last year, an increase of 2,986. The number of books finished this year was 24,401, as against 21,148 last year, an increase of 3,253. The value of the work this year was $131,060.79, as against $116,029.20 last year. All this increase with less employees shows an efficient force is employed on this very intricate and valuable work.

PLATEMAKING DIVISION

Some of the new machinery installed in this division is as follows: One flat beveler; a combination saw trimmer; 2 shaving machines; an automatic curve-plate beveling machine; 30 automatic blowpipes with mechanical shut-offs; a sweating-on machine; a shell trimmer and lead cutter; an electrotype cast scrubbing machine; a lead-molding press; a chromium plating apparatus, consisting of a lead-lined tank, stone jar, rheostat, and exhaust for removing gases; a stereotype molding press; and a 5-ton metal furnace.

All this new machinery has resulted in a decided saving in the various operations of electrotyping, and stereotyping, and I look for even more efficiency in this division during the coming year, as some of this machinery was installed at the end of the year.

One of the important jobs performed during the past year was the making of precanceling postage stamp plates for the Bureau of Engraving and Printing. We are now making cancellation stamp plates for playing cards.

During the past year this division made thousands of bond coupon plates, blocked on wood and metal, for the bureau also. This work alone amounted to $25,000.

The photo-engraving section has proved every day that the installation of this section was a wise and economical step toward better service to the Government establishments. In spite of the fact that this section had 23 employees this year as against 21 the past year, expenses of the section have been reduced $283.49, showing that it is giving the economical production demanded by the Public Printer. The amount of overtime was cut down from 1,907 hours in 1925 to 1,341 hours this year, a reduction in cost of $325.

The metal room is undergoing a complete change of layout, including the purchase of a new inclosed 5-ton metal furnace. Our daily requirements for the two machine typesetting sections is about 12 tons of metal per day. We are casting an average of 15 tons of ingots per day, which is allowing us to get plenty of metal ahead for emergencies. We now have in storage 85½ tons of linotype metal and 36½ tons of monotype metal. Of course, 85½ tons of linotype metal will only meet about 15 days' consumption, but with the amount being melted down daily this surplus will be ample.

NIGHT ASSISTANT PRODUCTION MANAGER

The night force is primarily a congressional force, and therefore a report of its activities must deal mainly with the work incident to the session of Congress.

A new method of handling the House Journal was started this session. In previous years the entire volume was set, no pick-up being used. As a result of a conference with the House Journal clerk, a plan was adopted whereby a large number of pages of type were picked up from the bound Record forms for use in the Journal. To make the saving more effective, a slight change in the style of the Journal was agreed to which made the Journal style conform to that of the Record. To carry out this plan the parts which could be picked up were marked on the Journal copy and as soon as the forms of the bound Record were printed the type was saved.

As a result, out of 896 pages of Journal, composition was entirely saved on 353 pages and slight changes made on 27½ pages, making 380½ pages. This pick-up is equivalent to 2,487,242 ems of type, amounting to approximately $2,650. This is a permanent annual saving, as the method will be followed in all future House Journals.

Congressional work, other than the Congressional Record, pamphlet speeches, bills, and work to be plated, amounted to 106,957 pages, or 12,350 forms, an average of 70 forms a night during the session. There were also 25,664 pages, or 2,810 forms, of departmental work sent to press, an average of 16 forms a night. The bills amounted to 80,189 pages, or 12,442 forms.

In all, exclusive of the Record, pamphlet speeches, and enrolled bills, there were 212,810 pages, or 27,612 forms sent to press during the session, a general average of 155 forms a night. This record was made with a smaller force than ever before in the history of the office.

It will be seen by the above report that the night force was able to meet all demands of Congress through a splendid spirit of cooperation between all sections. The utmost harmony prevailed between the officials of the various sections and between the officials and their employees. The employees had confidence in their supervisors, knowing them to be competent in their positions and just in their dealings with those under them.

DELIVERY SECTION

Owing to the fact that the past session of Congress was the busiest ever experienced, the delivery section was called on to extend itself to the utmost. However, all demands for deliveries were met with practically no overtime.

The fleet of Mack trucks proved themselves indispensable during this rush, and showed that our request for them was not merely a desire to have a big equipment but were actually needed. They hauled 1,013 complete carloads and 1,032 "less-than-carload lots" of paper from the various freight yards in this city. This vast amount of work was handled on such good schedule time that no demurrage charges were made against this office, which reflects

credit on the employees who handled the job as well as being a source of gratification to all concerned.

Our deliveries, both congressional and departmental, amounted to 103,689, an average of 331 daily, varying from a 1-pound package to a 500-pound case.

There were 252 shipments of postal cards, aggregating 1,608,465,500 cards, made during the year, making a total weight of approximately 2,251,200 pounds, or 1,125 tons.

All the above tremendous increase in hauling has been performed by the same number of employees—52—as we had on the roll the previous year.

SAVINGS

As chairman of the permanent committee on savings, I wish to report that effort along this line is just as intense as at the time the committee was first appointed three years ago.

This effort is helped materially by the constructive organization pictorial posters that are posted weekly. All employees, as well as the supervisors, are interested in them, and in my opinion one of the greatest results is in the effort to cut down waste, both in time and materials and in the recommendation of purchase.

An itemized list of savings made possible by utilizing material formerly disposed of as waste, added production through substituting modern for slow and obsolete machinery, use of cheaper material without affecting the grade of product, etc., shows that these economies for the year amounted to $230,838.59.

Just a word in conclusion. It will be seen by the above report of the work and the savings in the various units of this great plant that the efforts of all officials are to keep on working to make this the greatest printing establishment in the world from an efficiency standpoint. There is complete harmony and cooperation between all officials, and between the officials and the employees.

From my daily observations I believe that never before in the history of the office have the employees as a whole been so contented and cheerful about their work as at the present time. This is due primarily to the fact that they realize the Public Printer, as the head of this great establishment, has gone out of his way to improve working conditions, pay a salary comparable with commercial establishments, and to generally look after the health and welfare of all employees from the highest official to the newest messenger boy.

I also wish to take this occasion to state that in my position as production manager I have received the finest support from the Public Printer and the Deputy Public Printer that any official could possibly receive from his superior officers; and that the close cooperation given me by the officials under my supervision, and also those of the auxiliary divisions of the office, has made my occupancy of this exacting position a pleasure far in excess of any other experience I have had during my life.

Whatever success has been made by the production divisions is due to the efforts of your official family in always striving to help each other over the difficulties, and to cooperate with me in meeting the vexing questions bound to come up daily in an office of this size.

REPORT OF THE CHIEF OF TESTS

The work of the testing section during the past year has been much heavier than in any year since its installation in the Government Printing Office in 1922. Several important investigations have been completed and a number of new research problems undertaken.

The total number of samples analyzed during the year was 6,844, compared with 5,354 for the fiscal year 1924–25. This shows an increase of 28 per cent in the actual number of samples tested. The number of samples tested includes the technical inspection of all delivered materials, testing of samples offered by bidders, the analyses of technical control samples of glue, type metals, inks, etc., as well as all investigational samples.

The following is a detailed tabulation of the samples tested during the fiscal year 1925–26 and the fiscal year 1924–25:

	1924–25	1925–26
Paper and paper products, including bid, delivery, and investigational samples	3,942	4,397
Textiles, including bookbinding cloths and cordage	516	589
Bookbinding leathers	35	50
Metals, including type metals, tin, lead, antimony, etc	165	1,066
Glue	44	43
Ink-making materials	266	231
Lubricating oils and greases	82	54
Gasoline	72	97
Chemicals	136	134
Miscellaneous, including soaps, waxes, turpentine, etc	76	183
Total	5,354	6,844

This tabulation shows the largest increase in samples tested to be under paper and metals. The paper work has been unusually heavy during the past year; and owing to modifications in the paper specifications during the last two years, necessary testing in this connection has been materially increased. The specifications for all bond, map, ledger, writing, and kraft papers now carry a folding endurance requirement. A large number of paper samples were also tested during the past year in connection with investigations conducted relative to kraft, bond, and ledger papers.

The largest increase in the number of samples tested is shown under metals and is due to the technical control of type metal in the office. This requires the daily analysis of at least three lots of approximately 10,000 pounds each of linotype, monotype, or stereotype metal. A full report on the technical control of type metal is submitted herewith.

There were 171 rejections of paper and 42 rejections of miscellaneous materials during the year as a result of technical inspection.

The following is a tabulation of the causes for rejection of paper, some deliveries being rejected for more than one deficiency:

General appearance	12	Deficient in stock	6
Off and mixed color	8	Unsatisfactory opacity	1
Low in bursting strength	22	Unsatisfactory finish	16
Overweight	16	Deficient in folding endurance	131

Considering the large amount of paper purchased annually on definite specifications, the number of rejections due to noncompliance

with specifications is very low. On a total purchase for the year of approximately 40,000,000 pounds of paper the rejections amounted to about 5 per cent. This includes all rejections, whether for paper which was unsatisfactory on account of noncompliance with specifications in quality or, if satisfactory in quality, not within the 5 per cent weight tolerance allowed.

The value of the technical inspection of the various supplies purchased by the office can not be judged entirely from the number of rejections which result from such technical tests. The contractors dealing with this office fully appreciate that deliveries of all materials will be subjected to rigid technical examination for compliance with the specifications or accepted samples, and are exercising greater care to deliver material which will be satisfactory than would be the case if such technical inspection were not made. The office has received cordial cooperation from the contractors and manufacturers of paper and other materials.

In addition to the regular routine work of testing materials delivered to the office and the technical control work of materials manufactured by the office, considerable work is continually being conducted of an investigational nature. The results of this work are of the utmost importance in the development of specifications for the materials purchased for the use of the office and in effecting improvements and economies in the various processes employed by the office.

INVESTIGATION OF BOND AND LEDGER PAPERS

The cooperative work which was started two years ago with the United Typothetæ of America and the paper manufacturers for jointly working out technical specifications for at least the more important printing papers and materials used by the printing industry has been continued during the past year.

The work so far done on the technical standardization of paper has been limited to those papers commonly known as bond and ledger papers. During the year 1924–25, tentative specifications and grades for bond and ledger papers were prepared and published, together with a classified tabulation, under cipher letter, of tests on the commercial samples submitted by the manufacturers.

During the year 1925–26, the paper manufacturers were again invited to submit new samples of their regular brands of bond and ledger papers, in order to ascertain if the tentative specifications proposed were in need of revision, to determine the normal variation in paper of the same quality, and to stimulate additional interest in the technical standardization of paper. The paper manufacturers cooperated in this work.

For this second investigation on bond and ledger papers, 41 mills submitted samples of their regular mill brands. In all, 121 samples of bond and 51 samples of ledger papers were submitted and tested. The results of this investigation were printed in tabulated form, under cipher letter, each manufacturer being assigned a letter or letters after the serial number of all papers submitted by him. Copies of this tabulation, and also the tentative specifications and

first tabulation, are available to anyone interested in this work and will be furnished upon request.

Inasmuch as the results of the first investigation on bond and ledger papers indicated that the folding endurance test was the most indicative of the serviceability, durability, and quality of these papers, the folding endurance test and the bursting strength test were the only physical tests made in the second investigation. A quantitative determination for glue and rosin sizing was also made on all papers submitted which complied with the proposed specifications for grades 1 and 2 of the bond and ledger specifications.

The results of the second investigation relative to bond and ledger papers have shown an inclination on the part of several manufacturers to reduce the number of grades formerly made, and to produce these papers in accordance with the proposed specifications and grades.

It is now planned to reprint the proposed specifications with whatever slight modifications may seem advisable and include the classified tabulation of all samples submitted by the paper manufacturers on both the first and second investigations. A conference of representatives of the paper industry and the United Typothetæ of America will be invited to discuss the technical standardization of these papers.

This cooperative work on bond and ledger papers has been of great assistance to the Government paper specifications committee in the revision, under the direction of the Joint Committee on Printing, of Government specifications for these papers. The specifications adopted for the year 1925 by the Joint Committee on Printing include five grades of bond and four grades of ledger paper which are in conformity with the grades recommended in this investigation. These specifications have been renewed without change in the Government paper specifications for the years 1926 and 1927.

INVESTIGATION ON KRAFT PAPER

In order to secure reliable information as to the most satisfactory tests for indicating the quality and serviceability of kraft paper, an extended investigation has been conducted. Kraft paper manufacturers were requested to cooperate in this work by furnishing samples of their regular brands in two weights, 24 by 36, 500—40 pounds, and 24 by 36, 500—80 pounds, for test purposes. Fourteen different manufacturers cordially cooperated in this work and submitted samples of their regular mill grades of kraft paper. The samples submitted were subjected to all physical tests commercially used for paper testing, such as bursting strength, folding endurance, tensile strength, stretch, and tearing resistance, as well as determinations of fiber content and ash.

Previous to the investigation, practically all specifications for kraft paper were based on the bursting strength test, which test alone has not been found satisfactory for indicating the quality and probable serviceability of this grade of paper. A careful study of the different physical testing equipment indicated that the folding endurance tester gave results which were most indicative of quality and serviceability.

As a result of this work, specifications were prepared for two qualities of kraft paper, a No. 1 grade and a No. 2 grade, in which minimum average specifications for folding endurance and bursting strength were stated. The bursting strength test was specified owing to its common use by the paper manufacturers, but it should be stated that the folding endurance requirement is more important. Papers which may comply with the bursting strength requirement will not necessarily comply in folding endurance. However, any paper meeting the folding endurance requirement will possess good tensile strength and bursting strength, and will meet the requirements specified for bursting strength.

The specifications for two grades of kraft paper recommended as a result of this investigation were adopted by the paper specifications committee and approved by the Joint Committee on Printing for use in the Government paper specifications for 1926 and also for 1927.

The complete results of this investigation on kraft paper, giving all tests made, will be published in the near future for the information of paper manufacturers and consumers.

At the request of the District government, specifications have been prepared for use in the purchase of paper for use by the District schools. Bid and delivery samples submitted in connection with these specifications have also been tested for compliance with the same.

At the request of the Library of Congress, tests and recommendations have been made on samples of rope manila paper submitted to this office for use in the production of publications for the blind by the Braille method.

PAPER TESTING METHODS AND APPARATUS

The folding endurance test is now the most important requirement in the paper specifications for writing, bond, ledger, map, safety writing, and kraft papers. The paper specifications for the year 1926–27 specified a folding endurance requirement for over 11,000,000 pounds of paper, and the proposals for 1927–28 for over 12,000,000 pounds of paper. This test has been found to be the most satisfactory for indicating the quality and serviceability of paper.

During the past two years a thorough study has been made of the folding endurance tester. As a result of this work a very important improvement was made on the tester by substituting flat rollers, approximately one-fourth inch wide, for the knife edge rollers supporting the clamps holding the paper. The manufacturers of this tester are now equipping all testers with flat rollers having adjustable bases, in exact accordance with those developed by this office.

ATMOSPHERIC CONDITIONS IN PRINTING PLANT

An important investigation which is being conducted by the testing section is for the purpose of determining the most satisfactory relative humidity to maintain in the various parts of a printing office in order to secure maximum production of good

printing, and also to ascertain the effect of humidity on paper, ink, rollers, and other factors entering into the work of the printing plant.

Paper is a hygroscopic material which is readily susceptible to variations of the atmospheric conditions to which it is exposed. Owing to this sensitiveness to changes in the temperature and relative humidity of the air, many problems confront the printer in the handling of paper. Variations in atmospheric conditions are directly responsible, in most instances, for static troubles, wavy edges of paper, curled paper stock, and expansion and contraction of paper, all of which seriously interfere with production. Press rollers and printing inks are also susceptible to changes in physical characteristics due to variations of atmospheric conditions. At certain seasons of the year considerable difficulty is experienced with these materials.

The moisture content of paper bears a direct relation to the relative humidity of the air in which it may be exposed. For instance, the moisture content of printing paper exposed to a condition of 35 per cent relative humidity would contain a definite amount of moisture, probably between 3.5 and 4.5 per cent. Paper exposed to a condition of 20 per cent relative humidity would contain less moisture, and paper exposed to a condition of 50 per cent relative humidity would contain a greater amount of moisture. Therefore, if paper containing a certain percentage of moisture should be taken into a pressroom the relative humidity of which is considerably lower than would be required to maintain the moisture content of the paper itself, there would be a tendency for moisture to leave the paper. Or, if the humidity of the pressroom should be higher than would be required to maintain the normal moisture content of the paper itself, the paper would tend to take on moisture from the air. The results of this changing moisture content of the paper, and the fact that paper in stacks will not adjust itself to the atmospheric conditions uniformly in the same length of time, causes curl, wrinkles, wavy edges, and changing dimensions of the sheets. Furthermore, the normal temperature and relative humidity indoors is not uniform and changes from time to time.

Static electricity is produced by friction and occurs chiefly under low relative humidity conditions or on account of a wide variation between the temperature of the paper and the temperature of the pressroom. By increasing the humidity of the workrooms, static conditions are materially reduced and can be entirely eliminated at high relative humidity conditions, provided the paper is allowed to adjust itself to the room conditions.

In order to ascertain the normal indoors atmospheric conditions under which paper is handled by the printer and the ultimate consumer, considerable reliable data have been secured during the past two years. Recording temperature and humidity instruments were installed in certain sections of the pressrooms and bindery of the Government Printing Office where there was no apparatus for controlling or increasing the relative humidity of the rooms.

The following tabulations give the indoor and outdoor temperature and relative humidity in Washington for each month for the years 1925 and 1926:

Month	Indoor				Outdoor	
	Temperature, average	Relative humidity			Temperature, average	Relative humidity, average
		Average	Maximum	Minimum		
1925	°F.	Per cent	Per cent	Per cent	°F.	Per cent
January	80.9	23	35	16	32.3	67.3
February	81.3	29.2	41	18	42.7	64
March	79.6	30.6	46	20	46.7	61.3
April	78.3	34.4	49	20	54.3	56.6
May	80.6	34.6	51	23	62.7	57
June	84.3	34.9	48	21	79	59
July	82.7	39.3	55	25	77.7	64.7
August	81.6	55.6	66	41	71	68
September	80.7	60.5	79	45	72.7	68.7
October	79.3	43.9	63	26	53	68.3
November	80.1	22.3	31	12	44.7	63
December	78.9	28.2	37	18	37	61
Average for year	80.7	36.4			56.1	63.2
1926						
January	78.5	31.4	41	21	33.7	64.7
February	78.8	21.8	39	15	36.3	66.7
March	80.4	23	33	12	39.7	54
April	81.2	31.4	42	20	52	48.7
May	79.5	39.8	49	25	65.3	50.4
June	80.6	46.8	68	29	70.4	61
July	84.3	55.1	72	45	77.7	66.7
August	79.1	57.9	75	36	76	75.3
September	78.1	65.8	79	56	68.7	77
October	78.7	55.7	75	33	57.7	73.3
November	80	39.2	54	25	44.7	66.7
December	79.4	21.2	32	13	33.7	69.7
Average for year	79.8	40.7			54.7	64.5

The indoor results are readings taken from the 24-hour charts at 9 a. m. and 4 p. m. daily recorded in the main pressroom of the Government Printing Office. The outdoor temperature and relative humidity for the corresponding months are taken from United States Weather Bureau reports for Washington and are the averages of readings taken at 8 a. m., noon, and 8 p. m. daily.

From these data it will be noted that during the months of January, February, March, April, May, November, and December, and portions of June and October, the indoor relative humidity in Washington is usually low. During most of these months artificial heat is used to a considerable extent. The average relative humidity indoors for 1925 was 36.4 per cent and for 1926, 40.7 per cent.

Information secured from commercial plants in various parts of the country indicated similar conditions to those noted in the Government Printing Office. Sections of the country which require the longer use of artificial heat have a lower average indoor relative humidity than warmer climates.

From these investigations to date it has been found that, to secure satisfactory working results with paper, it is essential that low relative humidity conditions be overcome by humidification and that uniform relative humidity conditions be maintained in the printing plant. If paper manufacturers could deliver paper of a moisture content corresponding to the atmospheric conditions of the printing

office, complaints of static electricity, curl, wavy edges, changing dimensions of the paper, and similar troubles would be overcome. It is now essential for certain kinds of work requiring exact register that the paper be thoroughly seasoned in the pressroom by hanging the sheets in racks.

Equipment for increasing the humidity was installed in the job pressroom of this office in May, 1925. The results with this installation have shown an improvement in operating conditions. No curl or wavy edges of the paper stock have been experienced, and static has been largely eliminated provided the paper was stored in the room from 12 to 24 hours previous to use. The working conditions are also more satisfactory for the employees, as the air is more wholesome and practically free from dust.

Further investigations are being made with reference to the effect of relative humidity on the folding of paper, the ruling of paper, and the handling of bookbinding materials. One of the most important sections in a printing plant where low relative humidity should be avoided is in the folding room. Paper which contains a low percentage of moisture will give a rough fold and in many instances the paper will crack and break. Also in paper ruling the best results are obtained with paper containing a reasonable amount of moisture, approximately 4 to 6 per cent. In both the folding and ruling of paper the same difficulties are experienced with static electricity as in the pressroom. By the elimination of low relative humidity and by maintaining uniform humidity conditions, better results will be secured.

Considerable investigational work has already been conducted relative to binding books under controlled humidity conditions, in order to overcome the difficulties experienced with the warping of book covers. This work has been carried out in the testing room of the testing section, which is maintained continuously at 50 per cent relative humidity and 70° to 75° F. temperature. The binder's board used was previously exposed in this room, the cases made up, and the book completely bound under these atmospheric conditions. The results up to the present have indicated that books produced under these conditions have shown less tendency to warp than similar books produced under the normal indoor conditions.

From the results of this investigation on atmospheric conditions up to date, it is our opinion that the maintenance of a relative humidity of between 40 and 50 per cent will be most satisfactory during the months of the year when low relative humidity indoors usually occurs. During the summer months a relative humidity of between 50 and 60 per cent would probably be found the most economical to maintain without dehumidifying equipment.

INVESTIGATIONS ON MOISTURE CONTENT OF PAPER

An investigation has also been started by the testing section for the purpose of determining the normal moisture content of all kinds of paper as delivered to the office and also the moisture content of paper after exposure to definite relative humidity conditions. This investigation was undertaken because of difficulties experienced with paper containing an excessive amount of moisture.

Moisture is an essential constituent of paper. Paper containing too low an amount of moisture will tend to be brittle, seriously affecting its folding quality and serviceability. Paper which contains too much moisture will give various troubles in the printing plant. Moisture is also a matter of considerable importance in the weight and cost of paper.

Even at the high speed of the new postal-card presses it was found that paper containing 6 to 9 per cent moisture would be affected by the low relative humidity conditions of the pressroom so that the cards curled badly, seriously interfering with production. In fact, there was a loss in production of approximately 40 per cent until it was discovered to be due to the moisture content of the paper. Paper containing approximately 4.5 to 5 per cent moisture was found to give the best results. Therefore the new specifications for postal-card paper require approximately 5 per cent moisture content. Excessive moisture is a matter of considerable interest both to the Government and the manufacturer, since the postal-card contract covers approximately 12,000,000 pounds of paper annually at about 6 cents per pound, and the addition of 1 or 2 per cent of moisture to this immense tonnage seriously affects the cost as well as the condition of the paper.

The moisture content of various other papers has been determined by samples taken from a large number of deliveries. Standard samples of each grade of paper have also been exposed in uniformly maintained conditions of 50 per cent relative humidity and 70° to 75° F. temperature for at least 24 hours, and the moisture content determined. The following is a preliminary tabulation giving some of the results so far obtained:

Kind of paper	Moisture content of standard samples 70° F.–50% R. H.	Moisture content of regular deliveries as received			Deliveries
		Average	Maximum	Minimum	
	Per cent	*Per cent*	*Per cent*	*Per cent*	
Newsprint	8.2	9.7	11.0	8.3	4
Machine finish book	6.3	4.6	5.4	3.7	18
Supercalendered book	5.2	4.9	5.5	4.1	10
Sulphite writing	6.0	5.8	7.7	4.5	16
30 per cent rag bond	6.1	5.1	6.7	3.4	11
50 per cent rag ledger	6.0	5.1	5.6	4.5	6
100 per cent rag parchment	5.2	4.7	5.6	3.7	2
Postal card	6.0	4.8	8.7	3.0	51
Kraft	6.7	5.2	5.7	4.7	4
Rope manila	7.5	6.2	6.6	5.9	2

Reference to this tabulation will show that with practically all of these papers there is considerable variation in the moisture content of different deliveries. Also that different kinds of paper will vary considerably in the moisture content at the same relative humidity and temperature.

The investigation now under way will cover all paper handled by this office. It is hoped to set the preferable moisture content for all paper and to state the desired limits for moisture, so that paper manufacturers may have full knowledge of the requirements of this office.

INVESTIGATION OF RULING INKS

During the past year an investigation has been completed relative to inks for paper ruling, the results of which have been published in various trade journals. This investigation indicated a lack of information on the part of the operator as to the chemical nature of the various ruling inks used for paper ruling, their permanency, and suitability for ruling purposes. It has been the custom in purchasing ruling inks to specify simply a color designation, such as blue, red, or green ruling powder, with little or no information as to quality, permanency, or suitability for any specific character of ruling work.

There is considerable difference in the permanency of different ruling inks. An inspection of most ruled work that has been exposed to light for any length of time will show considerable fading, and in some cases the colors will have disappeared completely.

In the production of certain types of high-class work, such as ledgers and important record books, stress is laid on the quality and permanency of the paper and to the appearance of the ruling, but little attention has been given to the quality or permanency of the ruling ink. If a job is of sufficient importance to warrant the highest quality of paper and binding materials, it deserves the use of the most permanent ruling dyes.

A chemical examination of the various ruling powders used for paper ruling showed that they were water-soluble aniline dyes, that most of them required considerable "doping," that they were mixtures of several dyes in some cases, and that fading was usually very pronounced in finished work when exposed to light for any length of time.

This investigation was conducted for the purpose of securing reliable information on the following points:

(1) To ascertain the dyes possessing the characteristics suitable for paper ruling.

(2) To determine the permanency to light of these dyes in the concentrations used for ruling.

(3) To determine the most satisfactory and economical methods of preparing ruling inks for use.

(4) To develop tests for determining the quality and suitability of dyes submitted for ruling purposes.

(5) To eliminate "doping" as far as possible.

(6) To develop a list of dyes suitable for high-grade ruling and also a list of cheaper dyes suitable for tablet ruling and similar work where cost is a prime requisite and permanency not essential.

(7) To recommend the purchase of the dyes used for ruling under their chemical dye designations.

Aniline dyes, some of which are used for ruling, are divided into six general classes, known as basic, acid, direct, sulphur, vat, and developed dyes. The different classes of dyes were studied in order to determine their adaptability to the requirements of paper ruling. The basic and acid dyes were found to be the only dyes which possess the necessary characteristics for ruling work, and of these basic dyes are at present used almost exclusively in the commercial field.

In order to secure information relative to the kinds of dyes used in ruling powders, a thorough examination was made of various

powders commonly offered for use in paper ruling. These were found to be basic dyes, which, while satisfactory for cheap ruling, can not be considered permanent enough for durable or high-grade work, especially if such work is to be exposed to light for any length of time.

The investigation on ruling dyes showed that acid dyes are more suitable for ruling, especially for high-grade and permanent ruling work. They are more soluble in water than basic dyes, require practically no "doping," keep well in solution without the use of preservatives, are not affected by impurities in the water to the same extent as basic dyes, and are much more permanent to light than the basic dyes commonly used. They have less tinctorial power than the basic dyes, which necessitates the use of somewhat stronger solutions.

It was found that acid dyes are, except in the case of red, somewhat more expensive than basic dyes of corresponding color. However, the cost of the dye is but a small fraction of the cost of ruling, since only a dilute dye solution is necessary.

In order to determine the resistance of dyes to light in the shortest time possible, various types of apparatus have been devised using the ultra-violet electric light. These types of apparatus are used to a large extent and are suitable for comparative purposes. However, the results obtained with this apparatus are not always in harmony with those obtained by exposure to direct sunlight. The direct sunlight exposure is recommended as the best indicator of the actual durability of a color.

ECONOMICAL USE OF DYES FOR RULING

Distilled water is the best solvent for dyes, but if tap water is used the solution should be allowed to settle for several hours. Water from certain sources, due to dissolved salts, will precipitate more color than water from other sources. The use of distilled water will eliminate this trouble, and the cost will be offset by the saving in dye. Occasionally basic dyes will precipitate out heavily from tap water, due to dissolved calcium salts. This can be overcome by the addition of a small amount of vinegar or weak acetic acid.

In making solutions, the dyes should be dissolved in hot, but not boiling, water, diluted to the proper strength, and allowed to stand a few hours before being used. Good dyes will remain in solution indefinitely if kept in closed jars; but if kept in open bowls, the evaporated water should be replenished occasionally. If much dextrin be present in the dye, the solution will have a tendency to mold, especially in warm weather. This will necessitate the use of preservatives, which may cause trouble, as some preservatives cause the dyes to precipitate out, or, as it is commonly termed, "run watery." These troubles will be practically eliminated by the use of acid dyes.

Trouble is frequently experienced with poorly sized paper. When the pens strike certain spots in the paper the ink will not take. This can be remedied somewhat by the use of alcohol in place of part of the water. Acetic acid may also be used, and has the additional advantage of increasing the brightness of the color and decreasing the spreading of the ink over the paper.

In general, the use of "treating materials," such as ox gall, soda, borax, glycerin, gum arabic, rock salt, sea water, alum, etc., should

be avoided whenever possible, as these materials tend to clog the flannels, or affect the color or keeping qualities of the ink.

Excessive acidity of inks or the use of mineral acids in inks should be avoided, as this causes corrosion of the pens and also tends to cause deterioration of the paper on which the rulings are made.

BLACK RULING INK

An iron gallo-tannate ink, made according to the following formula, has been found satisfactory for black ruling work. This ink rules blue-black, and dries with a deep black color, which is fast to light, and when completely dried is unaffected by water:

	Grams	Ounces
Tannic acid	94	$3\frac{5}{16}$
Gallic acid	31	$1\frac{1}{16}$
Ferrous sulphate (crystals)	120	$4\frac{1}{4}$
Hydrochloric acid (10 per cent solution)	100	$3\frac{1}{2}$
Phenol	4	$\frac{1}{8}$
Blue dye (soluble blue "A") color index No. 707 or Schultz No. 539	14	$\frac{1}{2}$
Water to make	[1] 4,000	[2] 1

[1] Cubic centimeters. [2] Gallon.

All chemicals used in the manufacture of this ink should be of C. P. or U. S. P. quality. Particular attention should be given to the blue dye, as many of these dyes react with phenol and cause a metallic-appearing film on the surface of the ink. Inks made with such dyes will give trouble in ruling. Samples of dyes submitted should be tested, and only those dyes which do not react with phenol should be used for making this ink.

This ink should be made in the following manner: Dissolve the ferrous sulphate in cold water and add the hydrochloric acid. To this add the tannic and gallic acids, previously dissolved in warm water. Then add the dye dissolved in warm water and also the phenol. Dilute the mixture to 1 gallon. This ink is manufactured in the Government Printing Office at a cost of about 60 cents per gallon.

As a result of the investigation, two lists of approved dyes are submitted, one of acid dyes recommended as the most suitable for record and permanent ruling work, and one of basic dyes for cheap ruling, such as tablet work, where permanence to light is not essential and price is an important consideration. Although the acid dyes cost more, in most instances the difference in cost is offset to a considerable extent by their ease of manipulation.

Some dyes are known by several trade names, and wherever this occurs two or more are given. In addition, the Schultz number and also the color index number are given. Either of these numbers is sufficient for identification by dye manufacturers. The concentrated dyes are specified in all cases, since this is the economical method of purchasing dyes for ruling work. The identification number covers the chemical composition of the dye, but different manufacturers' products will vary in color shade. Ruling dyes should be bought under their chemical names and identification numbers instead of designation by color only.

The lists of dyes given cover the following colors: Blue, red, green, violet, brown, yellow, and black, which are the colors commonly used for ruling work. It is appreciated that there is a limited demand for other colors. However, these can be obtained, in most cases, by mixing the colors given in the list, or an acid dye of the desired shade can be obtained.

Dyes recommended for ruling

Color	Acid dyes—most suitable and permanent for ruling work. Recommended especially for records, ledgers, etc.			Dyes for cheap work such as tablet and other work of temporary character		
	Name of dye	Schultz No.	Color index No.	Name of dye	Schultz No.	Color index No.
Blue	Fast acid blue Cyanol extra. Vitryl blue, F. B.	546	715	Methylene blue 2 B Zinc free.	659	922
Red	Croceine scarlet B, 2 B. or M. O. O. Brilliant croceine.	227	252	Croceine scarlet B, 2 B. or M. O. O. Brilliant croceine.	227	252
Green	Naphthalene green V Erie green extra. Vitryl green 4 G.	564	735	Malachite green Acid green B	495 502	657 666
Violet	The following mixture will give a better color than acid violet alone: Vitryl blue F. B. 75 per cent. Fast acid violet 25 percent.	546 582	715 758	Methyl violet 2 B	515	680
Brown	Resorcin brown Fast acid brown.	213	235	Bismarck brown R. or Y Basic brown B. R.	284	332
Yellow	Tartrazine Wool yellow extra.	23	640	Chrysoidine Y	33	20
Black	There is no black acid dye suitable for ruling. For a satisfactory black see "Black ruling ink."			There is no black basic dye suitable for ruling. For a satisfactory black see "Black ruling ink."		

Acid green B. mixed with tartrazine will yield a bright grass green which is especially adapted for use in coloring book edges. This mixture can be varied over a wide range of shades by the marbler, is much more permanent to light than the grass green dye commonly used, and will be found less expensive.

GLUE INVESTIGATION

One of the most important investigations undertaken by the testing section since its establishment in the office has been relative to glue. This investigation has been completed this year with the adoption of methods for testing glue and the development of definite specifications for the various qualities used by the office. Methods for the proper handling of glue and formulæ which were developed for flexible glues for various bindery uses have been put into effect during the past two years with very satisfactory results. All large electrically or steam heated kettles, holding approximately 50 gallons, formerly used for handling glue, have been discontinued.

Glue, either straight or flexible, for all uses in the office, is now handled by molding in cakes of approximately 10 pounds each and is issued in this form for use in the small electrically heated pots of the bookbinders or various types of bookbinding machines. These cakes of molded glue when cut in small pieces will melt readily in a short time.

During the year investigational work was conducted on technical methods for measuring the quality of glue. The complete apparatus

for making the viscosity and jell strength tests, according to the methods adopted by the National Association of Glue Manufacturers, was installed. A careful investigation was made with this equipment and all samples of glue submitted with the bids for the annual contracts for 1925–26 were tested. The results were then checked against those obtained by the manufacturers themselves on the same samples. The results were satisfactory and showed that it is possible to obtain check results between different laboratories with these methods. This was practically impossible with former methods of testing glue. In addition, the tests are expressed in terms which can be understood by manufacturers. The methods were therefore adopted by the testing section and are used for testing all glue purchased by the Government Printing Office.

Prior to the adoption of these standardized methods for determining viscosity and jell strength, the evaluation of glue was on more or less a hit-or-miss basis. As a rule, glues were purchased by comparing them with standard samples. No two manufacturers used the same standards, and there was no standard test accepted by all manufacturers, and standard samples might vary widely. As a result, the purchaser was limited to glues from manufacturers who had furnished good material or to glues selected by merely practical tests. The practical test method, however, is unsatisfactory and unreliable, owing to the "rule o' thumb" method in soaking and preparing the glue and the difference of personal opinion.

By adoption of standard methods it is now possible to purchase glue of any particular quality according to definite specifications for viscosity and jell strength. Any manufacturer should be able to bid intelligently on the specifications. Although the apparatus and methods of testing are such that it is not practicable for the average consumer to make the specified tests, a glue manufacturer should be able to guarantee glue according to definite specifications of viscosity and jell strength.

During the year the preparation of all glue for bindery use was transferred from the bindery to the press roller room, where more modern equipment was available, thereby consolidating the handling of all glue in one section. The handling of glue by molding into cakes for issue has proved efficient and economical and has been continued with all kinds of glue. The glue is soaked in cold water, then melted at a temperature not exceeding 150° F., and the necessary ingredients and preservatives added. As a preservative, 0.2 per cent of zinc sulphate is used. The melted glue is strained through fine wire screens in order to remove any lumps, traces of dirt, or other foreign material, and is then run into pans which hold approximately 10 pounds each. When chilled, this glue is transferred to the refrigerator in the bindery glue room for storage.

SPECIFICATIONS FOR GLUE

The following tentative specifications were adopted for the three grades of glue required for the office for the year 1926–27:

All glue shall have a pH value between 6.4 and 7.0 and be clean and free from foreign matter. A solution of any grade shall not develop a strong or sour odor when kept 48 hours at a temperature of 25° to 35° C. All tests to be based on a 12 per cent moisture

content and to be made according to the methods adopted by the National Association of Glue Manufacturers. Deliveries to be made in paper-lined wooden barrels.

GLUE NO. 1

Bone or hide glue, ground, for general bindery use:
Viscosity, not less than 50 millipoises.
Jell strength, not less than 130 grams.

GLUE NO. 2

Bone or hide glue, ground, nonfoaming and suitable for machine feed:
Viscosity, not less than 60 millipoises.
Jell strength, not less than 165 grams.

GLUE NO. 3

Hide glue, ground or flake, for roller manufacture and bindery use:
Viscosity, not less than 130 millipoises.
Jell strength, not less than 400 grams.

The value of these specifications for purchasing glue was shown in the bids received on the proposals for 1926–27. Bidders were permitted to bid on the specifications without submitting a sample, or, if not equipped with the necessary apparatus for testing in accordance with the adopted methods, they could submit a 5-pound sample and tests would be made by the Government Printing Office. It was definitely stated that no award would be made unless the quality proposed was equal to the specifications. Awards were made for all three qualities of glue to the lowest bidders on specifications. Deliveries so far made on these contracts have been equal to the specifications and quite satisfactory in use.

Since it is now possible to definitely specify the quality of the glue used, the formulæ used for various glues in this office are given herewith, and can be used by commercial binderies, provided the same qualities of glue are used. Five formulæ have been adopted for all types of work in this office, three of which, including tablet composition, are flexible glues, and two straight glues, molded ready for use.

With flexible glue it is necessary to vary the formulæ slightly at different seasons of the year in order to secure satisfactory results, owing to atmospheric conditions. This is done in most instances by varying the percentage of water and not affecting the amount of glycerin added, but can also be done by varying the amount of glycerin if desired. In our opinion it is better to maintain the flexibility of the glue if possible, and for this reason the glycerin is not changed unless absolutely necessary. However, these formulæ have been reduced to practically a minimum water content and furnish glues which will, under most conditions, require dilution with water as used.

The following formulæ give the ingredients used in the preparation of approximately 350 pounds of material in each case. In general, these formulæ are satisfactory throughout the year.

Flexible glue, for general bindery use:

Glue No. 1	pounds	123
Water	do	123
Glycerin	do	91
Zinc sulphate	ounces	10

Special flexible glue, for use on gathering, stitching, and covering machines, and wherever a high-quality quick-setting flexible glue is required:

Glue No. 2	pounds	75
Glue No. 3	do	75
Water	do	130
Glycerin	do	64
Zinc sulphate	ounces	10

Tablet composition:

Glue No. 1	pounds	120
Glycerin	do	113
Water	do	113
Zinc oxide	do	4
Zinc sulphate	ounces	10

Case-making glue, for use on case-making machines:

Glue No. 2	pounds	175
Water	do	175
Zinc sulphate	ounces	10

Common glue, for use in modifying other glues when necessitated by weather changes:

Glue No. 1	pounds	175
Water	do	175
Zinc sulphate	ounces	10

UTILIZATION OF WASTE ROLLER COMPOSITION

As stated in last year's report, the waste roller composition which previously had been discarded and either thrown away or sold for a price not exceeding 1½ cents per pound is now reclaimed for bindery uses. Press rollers are made from high-grade hide glue and glycerin, and even after becoming unfit for further use as such the material is satisfactory for certain adhesive purposes in the bindery, particularly where considerable flexibility is needed, due to the high glycerin content.

The greater part of the waste roller composition has been utilized in the manufacture of tablet composition. Colors which may be absorbed by this composition from various inks are not objectionable for tablet work. This material has been sufficient to furnish all tablet composition used by the office. A small amount is also used to give flexibility to some of the lower grade bindery glues. The utilization of this waste composition has effected an appreciable economy. The following formula is used in the manufacture of tablet composition from waste rollers:

Waste roller composition	pounds	200
Glue No. 1	do	20
Water	do	90
Zinc oxide	do	5

Due to the high quality of the glue and the large amount of glycerin present in this composition, it was found necessary to add a small amount of grade 1 glue.

An article is now being prepared for publication giving the results of this work and recommending the use of definite specifications for the purchase of glue. The article will state the various qualities necessary for use in the printing industry, the most economical methods for handling, and recommend formulæ for various uses.

At the request of the Treasurer of the United States a special adhesive was developed by the testing section for use in applying signature paper forms to aluminum guide cards. Considerable difficulty had been experienced with adhesives used for this purpose in that either unsatisfactory adhesion resulted or the adhesive affected the ink on the paper. It was necessary that a liquid adhesive be used which could be applied cold. As a result of experiments a liquid animal glue adhesive was produced which could be applied cold, and the results were entirely satisfactory. This glue gave excellent adhesion between the paper and aluminum and had no effect whatever on the ink on the paper.

TECHNICAL CONTROL OF TYPE METAL

Probably the most important investigation which has been undertaken by the testing section is the technical control of all type metal used by the Government Printing Office. The work was started last year when methods of analysis and correction were adopted for handling each pot of metal when remelted. Tentative standard formulæ were adopted for linotype, monotype, and stereotype metals after a careful study and practical tests with several different alloys. The formulæ have been adhered to throughout the year without change.

The following tabulation gives the amount of each metal corrected to standard formulæ between January 1, 1926, and December 31, 1926, together with the amounts of metal used in making such correction. Since the annual report for last year covered the correction of type metal through December 31, 1925, this report covers one year beginning January 1, 1926:

LINOTYPE METAL

Old metal melted—pounds	5,142,565
Lead used in correction—do	270,720
Lead-antimony alloy[1] used in correction—do	60,365
Corrected metal delivered—do	5,473,650
Increase due to correction—do	332,085
Percentage increase due to correction—per cent	6.4

MONOTYPE METAL

Old metal melted—pounds	1,730,245
Lead-antimony alloy[1] used in correction—do	47,347
Tin used in correction—do	3,574
Corrected metal delivered—do	1,781,166
Increase due to correction—do	50,921
Percentage increase due to correction—per cent	2.9

STEREOTYPE METAL

Old metal melted—pounds	575,020
Lead-antimony alloy[1] used in correction—do	7,062
Tin used in correction—do	691
Lead used in correction—do	4,859
Corrected metal delivered—do	587,632
Increase due to correction—do	12,612
Percentage increase due to correction—per cent	2.1

[1] Lead-antimony alloy consists of approximately 55 per cent lead and 45 per cent antimony.

An average of three pots of type metal, each containing approximately 10,000 pounds, are analyzed and corrected to standard formulæ daily.

During the year a new metal melting pot of 10,000 pounds capacity was installed. This pot is equipped with mechanical agitation, thus insuring proper alloying and mixing of the metal, and is also equipped with thermostatic control to prevent overheating the metal. It is insulated to retain heat and to reduce loss of type metal from drossing to a minimum. It discharges from the bottom of the pot into cooling molds, which eliminates the labor of ladling out the metal.

Several modifications in the handling of metal have been effected during the year. When type metal control work was begun it was found that a large part of the metal contained more or less impurities, particularly copper, which was present in some instances above the allowable percentage, especially for linotype metal. The removal of small amounts of copper is very difficult and can only be effected through careful drossing and fluxing.

All type metal is now melted so that samples of the metal may be analyzed and the pots corrected the afternoon previous to pouring. After drossing, analyzing, correcting, and alloying, the pots are allowed to solidify overnight. In the morning they are heated gradually until melted and are then skimmed at a definite temperature in order to remove any copper or unalloyed antimony which has come to the top. These metals have a tendency to come to the top if the molten type metal is allowed to stand undisturbed at a temperature slightly above the freezing point of the alloy.

By this method and careful drossing, together with care that no additional impurities are allowed to get into the metal, the quality of the type metal has been improved considerably and the percentage of copper is now below the allowable limit in most metal. A copper determination is made on each pot of metal in addition to the tin and antimony analyses.

In view of the difference in the physical structure of alloys, air cooled and water cooled, and the difficulties experienced with air-cooled metal during the year, all type metal—linotype, monotype, and stereotype—is now water-cooled in order to secure the closest grained alloy.

In order to eliminate the possibility of any oxidized metal or dirt getting into the pots on the typesetting machines, and thus showing up in the faces of type cast, all pigs are now skimmed after pouring.

A pyrometer for indicating the temperature of the metal in any of the four metal pots has been installed in the metal room during this year. Definite instructions have been issued in connection with this technical control work, stating the temperature at which the alloy shall be added to the metal, the length of time and temperature at which the metal shall be thoroughly stirred and agitated, the temperature at which the metal shall be skimmed after standing overnight, and the pouring temperature for molding. It has been found that only by careful attention to each of these details can the quality of the type alloy be properly maintained.

Linotype metal.—The formula adopted for linotype metal last year was 4.5 per cent tin, 11.5 per cent antimony, and 84 per cent lead. This formula has been followed throughout the year without change.

The allowable copper content of linotype metal has been set at 0.05 per cent, and considerable work has been done this year to reduce the copper content of this metal, which when metal-control work was begun was in many cases above the allowable percentage, in some instances being as high as 0.2 per cent. In our opinion metal with 4 per cent tin content would be entirely satisfactory for linotype work. Therefore, no attempt will be made to hold the tin content of this metal up to 4.5 per cent, should it fall below this amount. Previous to technical control of type metal the tin content of linotype metal was too high for satisfactory use on the machine, averaging approximately 6 per cent.

During February and March of this year considerable trouble was experienced with linotype metal. This difficulty was the clogging of the mouthpieces on the linotype machines. Careful investigation traced this trouble to the fact that air-cooled molds had been put into use for pouring linotype metal for use in Margach feeders on account of insufficient water-cooled molds. The pigs cast in these molds weigh approximately 25 pounds each and are triangular in shape, approximately 2 inches to a side. Such a large quantity of metal poured in air-cooled molds, especially after they had been in continuous use for a short time, chilled at a slow rate. The slow chilling resulted in metal with a coarse grain. The size of the crystals in an alloy, other things being constant, is dependent directly upon the rate of cooling. The air-cooled pigs required from 14 to 20 minutes to cool, while the water-cooled pigs cooled in 3 to 5 minutes. The small amounts of copper in the metal crystallized in large crystals when air cooled, which aggravated the troubles due to copper in the metal. When the metal was cooled in water-cooled molds it was chilled so rapidly that the resulting metal was of a solid, close-grained texture, and all crystals, particularly those composed of copper, were much smaller than when air cooled slowly. All air-cooled molds have been discarded, and all linotype, monotype, and stereotype metals are now being poured in water-cooled molds only.

The percentage of correction necessary to adjust the linotype metal to the adopted standard has decreased throughout the year, and the metal is now in much better condition. The average increase due to necessary correction for January, 1926, was 16.7 per cent, while that for December, 1926, was 1.6 per cent. When this control work was started the condition of this metal was such that it required as much as 40 per cent of its weight of correction metal to adjust the metal to the standard formula. This was due to the high tin content of this metal which was considerably above the amount satisfactory for linotype metal.

Stereotype metal.—The formula adopted for stereotype metal last year—8 per cent tin, 15.5 per cent antimony, and 76.5 per cent lead—has been followed throughout the present year without change.

Some trouble was experienced with stereotype metal due to coarse-grained, honeycombed plates. When technical control work was first started, stereotype metal, after correction to the standard formula, was poured in air-cooled pigs weighing approximately 50 pounds each. As in the case of linotype metal similarly cooled, the metal was of a very coarse structure, and when remelted at the low temperature used for stereotype casting this structure was retained to a certain extent, resulting in unsatisfactory plates. As soon as

this condition was discovered the method of cooling the metal was changed and all stereotype metal was cooled in 25-pound water-cooled pigs. A marked difference was noted as soon as this metal was put into use, and no complaints due to defective metal have been received from this section since this change was made.

Monotype metal.—The tentative standard formula for monotype metal was set last year at 7 per cent tin, 16.5 per cent antimony, and 76.5 per cent lead, which has been followed throughout this year without change. It was found that the monotype metal contained a higher percentage of copper than the other type metals in the office. However, since it is cast at considerably higher temperatures, the copper present has caused no trouble. From our experience to date with this metal it is believed that copper to the extent of 0.4 per cent is not detrimental to monotype metal, but gives added toughness and hardness to the finished type.

No trouble has been experienced with monotype metal during the year, and a marked improvement has been noted in the type cast and also in its use in the office. Complaints of crushed type have been infrequent, and in cases investigated the trouble was found to be due to type cast before the technical control or to difficulty with the heating unit of the casting machine.

The following statement regarding the monotype metal before and after technical control was recently made by the office type inspector:

> Previous to the technical control of monotype metal, the main cause of bad type was the metal. This has been practically eliminated since the testing section took charge of the metal.

The results from standardization of monotype metal indicate that a consistent correction is required to keep this metal up to standard. This metal shows an appreciable loss of both tin and antimony after each use on the casting machine. The average loss during the past two months shows 0.4 per cent tin and 0.8 per cent antimony.

Previous to the technical control of the monotype metal, the metal in use by this office was generally too soft for satisfactory work, due to low antimony content. Linotype metal, however, does not show loss to the same extent after remelting, and in our opinion can be reused several times before requiring correction.

DETERGENTS FOR THE REMOVAL OF INKS

In the annual report for 1925 a report was made of an extended investigation conducted by the testing section relative to detergents for the removal of printing ink from type, the removal of wax from electrotype shells, the cleaning of press rollers, and the cleaning of ink containers. The recommendations have been followed during the year without material change, and excellent results are being obtained throughout the office. Further study has failed to develop any better materials for these purposes.

Our experience with the materials recommended in the previous report on detergents has indicated a minor change in the use of the alkali materials in order to insure more satisfactory results. In the use of the trisodium phosphate cleaning mixtures for washing type forms it was stated that the surface of the type should be thoroughly washed with hot water previous to the application of

the cleaning mixture and then again be rinsed with hot water. Experience with this method of cleaning showed that the use of lukewarm water was unsatisfactory, the removal of printing ink was incomplete, and the type showed a slight incrustation of the cleaning solutions upon drying. It was found necessary, therefore, to wash the forms with a mixture of steam and hot water, which quickly heated the surface of the metal and efficiently removed all traces of the cleaning solutions in the final rinsing.

The testing section has continued to render assistance to the Post Office Department in connection with cleaning compounds. The materials used for this purpose, which were proposed as a result of the detergent investigation by this laboratory, are trisodium phosphate and caustic soda and are purchased in very large quantities. Specifications for this material have been prepared by the testing section and all bid and delivery samples tested for compliance with the same.

WORK OF THE INK SECTION

During the year 118,061 pounds of ink were manufactured by the ink section. Although 75 different kinds of ink were manufactured, there were only 30 of which 100 pounds or more were made.

The following gives a list of the principal inks manufactured by the ink section during the year and the quantities produced:

	Pounds		Pounds
Book black	28,907	Pan American blue	160
Job black	22,497	Revenue red	569
Halftone black	11,357	Job red	388
Record black	14,855	Job red, blue shade	155
Rotary halftone black	7,044	Sunproof red	117
Stationery black	4,972	Tampa yellow	397
Money order black	2,415	Lemon yellow	296
Carbon coating black	1,257	Orange yellow	220
Proof press black	920	Postal card green	6,625
Eulogy black	420	French medium green	499
Addressograph black	230	Revenue green	215
Bronze blue	338	Marble, dark brown	296
Money order blue	336	Marble, dark red	142
Stationery blue	233	White	243
Stencil blue	268	Magnesia	141

It will be noted that the 30 inks listed cover approximately 91 per cent of the entire output for the year.

During the year a new three-roll ink mill has been installed in the ink section. It is now possible to meet all requirements of the office and to insure the proper grinding of all inks. Additional equipment will be required during the next year due to furnishing various inks to other branches of the Government.

In order to reduce the amount of waste ink returned to the ink section from the pressroom, an investigation has been made into all phases of handling of ink. As a result of this investigation, no can for ink is refilled without first being thoroughly cleaned. Oiled paper is placed over the surface of all ink placed in the can to prevent the formation of skins on the ink. In order to facilitate the washing of ink cans and add to the life of the cans, they are purchased with rolled edges on the top and on the lids. The dimensions of all cans were changed so that it is easier to remove the ink and scrape

clean. All narrow deep cans were discarded and replaced with lower cans of greater diameter.

The amount of waste ink returned to the ink section was reduced 20 per cent during the year compared with last year, and 40 per cent compared with the year 1923–24. In 1923–24 approximately 15,000 pounds of waste ink of various kinds were returned to the ink mill. In 1924–25, 12,380 pounds were returned, and during the present year 9,900 pounds.

The use of the trisodium phosphate formula for washing ink containers has been continued with entire satisfaction and considerable economy.

All materials used in the manufacture of ink are purchased under definite specifications prepared by the testing section and all deliveries are tested for compliance with the same. During the year specifications were adopted for two grades of varnishes not previously used and specifications for all lake colors were revised to allow the purchase of materials which are much faster to light.

Attention has been given to all material used in the manufacture of ink for printing posters for outdoor exposure. During the year an investigation was made relative to ink used for red-poster work. Various samples were submitted by different color manufacturers and these colors were given severe exposure tests for fastness to light, both in sunlight and the ultra-violet light. As a result a satisfactory pigment has been adopted which is of a brilliant color and much more permanent to light than any previously used by the office. Specifications have been prepared for the purchase of this color.

In order to meet the requirements of the gelatin process duplicating machines, a formula was developed for violet copying ink for use in printing forms to be copied on this machine. A purple writing ink, suitable for filling in such blanks, was also developed for use on the duplicating machines.

Special investigations have been carried on in the past relative to stamp-pad and numbering-machine inks. As a result of this work we are now in a position to furnish red, blue, and black stamp-pad and numbering-machine inks for use in this office and the Government departments.

In the past considerable investigational work was conducted relative to the manufacture of mimeograph ink, which is used by the Government in large quantities. Special formulæ were developed, and ink produced by this office gave satisfactory results.

With the authorization of the Sixty-ninth Congress, whereby inks, glues, and other supplies manufactured by the Government Printing Office may be furnished to other departments of the Government, considerable additional work was added to the ink section in the production of mimeograph ink. Multigraph ink, which is also used by the various departments in considerable quantities, is furnished from the regular printing inks which are satisfactory on duplicating machines using metal type.

A special check addressograph ink was developed about two years ago at the request of the Treasurer of the United States for use on sensitized check paper. The use of this ink by the various departments has increased considerably and during the year has been fur-

nished to the Treasury Department, Veterans' Bureau, Post Office Department, State Department, and practically all branches of the Government service using metal addressograph stencils.

At the request of the Post Office Department an indelible black printing ink was developed this year to be used for precanceling postage stamps. A special purple copying stamp-pad ink capable of giving a minimum of 30 clear copies was also developed for the Interior Department.

ASSISTANCE TO OTHER DEPARTMENTS

The testing section is frequently called upon to assist various Government departments by conducting investigations of a technical nature in order to improve certain materials or processes already in use or to develop new materials to meet special requirements. Work of this character has already been noted in this report in connection with paper, ink, and glue investigations.

PASSPORT INK AND GLUE

During the year considerable work has been done in connection with the United States passports printed for the State Department. This investigation was conducted at the request of the head of the passport division in order to produce passports which would be practically impossible to alter without detection. Specifications were prepared for a high-grade all-rag paper for use in printing passports and a slate-green sensitive ink was developed for use in printing a surface design on the paper. The ink developed for this purpose is sensitive to any attempt at chemical or mechanical erasure and will not lose its sensitiveness even after a long period.

A special adhesive was also developed for attaching photographs to passports and a method of using the same recommended. The adhesive suggested for this purpose has proved to be much more satisfactory than that previously used. Photographs applied with this adhesive can not be removed without destroying the paper to which attached.

A special indelible-black stamp-pad ink was developed for use in stamping passports. The new ink penetrates the fibers of the paper, carrying a carbon-black pigment practically through the sheet, thus making it impossible to eradicate.

BOOK LABELS FOR LIBRARY OF CONGRESS

Assistance was requested by the Library of Congress in the matter of applying labels to the backs of books in cataloguing. The labels previously used were of poor quality paper, gummed with dextrin or dextrin and fish glue, such as is commonly used for this work. Considerable trouble had been experienced due to the labels falling off or the paper splitting. This was a serious difficulty, owing to the great number of books in the library, and was aggravated by the various qualities of bookbinding materials used. Tests were made, using various grades of paper and different kinds of adhesives in order to determine the best paper for the purpose and to secure the most satisfactory adhesive for this purpose.

As a result of experiments extending over several months, the following recommendations were made: That the labels be printed on 100 per cent rag-bond paper, basis 17 by 22, 1,000 sheets, 32 pounds. The grain of the paper to run in the vertical direction of the label in order to allow the maximum stretch of the paper, which is across the grain, to run across the back of the book. The labels to be gummed with a special flexible animal glue developed by the testing section. It was found that the labels so gummed could be easily attached in a very short time by dampening them in the usual manner and then applying a warm flatiron to them after being placed on the back of the book.

While the time consumed in putting on these labels was somewhat longer than with the former type of labels, a trial convinced the representatives of the Library of Congress that it was time well spent, since once these labels were attached there was practically no possibility of removing them.

Suggestions were also made relative to the use of flexible varnishes to cover the labels after application to the book. The recommendations as a result of this investigation were adopted by the Library of Congress, and now all labels are printed by the office in accordance with the above specifications and suggestions.

SUPPLIES FURNISHED OTHER DEPARTMENTS

The work of the testing section has been materially increased since July 1 of this year, due to the passage of Public Act 222, Sixty-ninth Congress, which contains the following provisions:

* * * *Provided*, That inks, glues, and other supplies manufactured by the Government Printing Office in connection with its work may be furnished to departments and other establishments of the Government upon requisition, and payment made from appropriations available therefor: * * *.

Practically all materials covered by this law are manufactured under the direction of the testing section. As a result all jackets for these miscellaneous materials must be checked by this section in order to insure delivery of satisfactory products. The work of the ink section will be increased considerably, since the largest quantities of miscellaneous supplies to be furnished in accordance with this act are inks manufactured by this section. The principal materials which will be furnished are mimeograph, multigraph, addressograph, and writing inks. Printing inks, paste, and glues will also be furnished to certain branches of the Government using considerable quantities of this material.

Although this act was effective July 1, 1926, it was stated that the office would not be in a position to furnish mimeograph ink until the 1st of October, in the first list of materials published furnishing information to the departments on the materials which could be furnished. Between July 1 and December 31 orders have been received for 6,579 pounds of printing ink of all kinds, including mimeograph and multigraph, 1,830 pounds of flour paste, 389 gallons, or 1,556 quarts, of blue-black and red writing inks, and 532 pounds of molded glue. The majority of these orders were received since September 1.

The economy which will be effected by furnishing these materials to the departments can be readily noted by comparing the following prices quoted by this office and the General Supply Committee for 1926–27 on similar items.

Material	Government Printing Office price	General Supply price, 1926–27
Mimeograph ink, in 1-pound cans	$0.60 per pound	$1.50 per pound.
Multigraph ink, black, in 1-pound cans	$0.30 or $0.55 per pound.	$1.30 per pound.
Numbering machine ink—blue, red, or black	$1.25 per pound in ½-pound cans.	$4.31 per pound in 1-ounce bottles.
Black addressograph ink for use on metal stencils, also suitable for sensitized check paper; in 1-pound cans.	$1 per pound	$2.73 per pound.
Blue multigraph, in 1-pound cans	$0.60 per pound	$2.25 per pound.
Standard blue-black writing ink for fountain pen and general office use.	$0.48 per gallon, without bottles.	$0.87 or $1.05 per gallon in quart bottles.
Red writing ink	$0.20 per gallon, without bottles.	$0.93 or $1.07 per gallon in pint bottles.

All writing inks furnished by this office are furnished in 1, 3, or 5 gallon containers, which can be reused.

During the year considerable quantities of check addressograph ink and a limited quantity of other inks and glue were furnished to the various Government departments.

PUBLICATIONS

During the past year the following articles have been prepared by the testing section and published in various trade journals:

"Value of technical work to the printing industry," by E. O. Reed.
"Detergents for use in the printing industry," by E. O. Reed.
"Ruling inks and dyes," by E. O. Reed and B. L. Wehmhoff.
"The work of the testing section of the Government Printing Office," by E. O. Reed.
"Atmospheric conditions for paper testing," by E. O. Reed.
"Second tabulation of test results on bond and ledger papers," published by the Government Printing Office, May, 1926.

COOPERATION WITH VARIOUS INDUSTRIES

Considerable cooperation has been conducted throughout the year with commercial concerns furnishing materials to the office for the purpose of developing specifications for the various materials used and for the purpose of carrying out various investigations conducted by the testing section.

Cooperative work was conducted with members of the National Association of Glue Manufacturers in connection with the investigation on the methods of testing glues and the development of specifications for glue. As previously stated in this report, cooperative work has also been conducted with the United Typothetæ of America and the paper manufacturers relative to the standardization of paper.

Numerous requests have been received by the testing section for technical information on various problems handled in connection with the work of the Government Printing Office. This work has been very heavy during the year, showing a considerable increase

over any previous year since the establishment of the testing section. These requests have been for information on specifications for paper and other materials and for assistance in connection with difficulties similar to those experienced in this office. In all, more than 500 communications were sent out during the year in this connection by the testing section.

The testing section has planned several new research problems which will be started in the near future.

1. Investigation of paper and cloth shipping tags in order to prepare satisfactory specifications for the purchase of the same.
2. Investigation on various types of gold, imitation gold, and aluminum stamping leaf for the stamping of book covers, in order to determine the qualities which will best resist corrosion.
3. An investigation on coated book paper in order to prepare more satisfactory specifications for the purchase of this quality paper.
4. An investigation on type-metal alloys for various typesetting machines and stereotype work.
5. Investigation relative to chromium plating for use on printing plates.
6. Investigation relative to the best materials for use in cleaning stereotype plates before nickel plating.
7. Investigation relative to bookbinding materials, including bookbinding cloths and leathers.

Considerable assistance has been rendered various Government technical committees by the testing section of this office. The chief of tests is a member of the following committees and devotes considerable time in connection with the work of these committees:

Paper specifications committee of the Joint Committee on Printing, Federal Specifications Board, envelope committee of the Post Office Department, committee on inks in connection with the printing of money (Bureau of Efficiency); also the following Federal specifications committees: Paper technical committee, committee on inks and typewriter ribbons, technical committee on color, shipping container committee, and committee on specifications for lubricants and liquid fuels.

In my opinion, the work of the testing section has shown remarkable progress and fully justified its establishment in this office. The regular routine work of the testing section has been very heavy; however, we have been able to accomplish valuable results in connection with the investigational and technical control work.

REPORT OF THE SUPERINTENDENT OF DOCUMENTS

I have the honor to submit herewith the annual report for the fiscal year ended June 30, 1926.

A future of unbounded usefulness lies before the public documents division of the Government Printing Office when Congress and the public awaken to a realization of the true value and proper function of Government publications and when they become fully conversant with the possibilities for extension of the service that our office renders to American libraries and the American people. I have grown up with the documents office, and, from the beginning, I have been impressed with the part the office could play in the dis-

semination of information compiled by the various departments of the Government. I have heard expressions of surprise from hundreds of visitors when they realize the wonderful amount of information contained in Government publications, yet see how little effort, comparatively speaking, is made to acquaint the public with what has been printed.

The progress that our office can make in serving the public will be materially affected by two requirements—first, available room in which to grow; second, a proper appreciation of the character of the work and the realization that only a trained and experienced personnel can render the most efficient service. As to the first requirement, your success in having the Government Printing Office included in the building program that has been provided by Congress offers some encouragement, for I know your interest in our work will result in additional room for the public documents division. As to the second, I have reason to believe that the salaries of the personnel will be raised to a higher standard, which will prove an incentive to the employees to remain a sufficient length of time to acquire a knowledge of the publications and the activities of the Government.

The increase each year in the work of the office—and there is every reason to believe that it will continue to increase—justifies our anticipating an early need for additional room. Some idea of the increase will be gained from the following figures:

Receipts from sale of publications:	
1924–25	$487,922.63
1925–26	544,937.51
Increase	57,014.88
Publications received in stock:	
1924–25	55,138,327
1925–26	60,757,158
Increase	5,618,831
Publications distributed:	
1924–25	49,438,927
1925–26	60,990,405
Increase	11,551,478
Letters of inquiry received:	
1924–25	161,852
1925–26	163,723
Increase	1,871

SERVICE

Last year I mentioned in my report that improvement in service is our constant aim, and our efforts are meeting with some success. Deposit accounts are being encouraged, shipments are made C. O. D. when requested, and also in cases where the writer indicates an immediate need for publications of which he does not know the price. The practice of returning short remittances and quoting correct prices has been replaced by the practice of sending publications with memorandum of balance due. This innovation has created consid-

erable favorable comment, and is a practice that is followed by mail-order houses.

Another new feature being inaugurated is accepting deposits for continuation orders for publications that can not be sold on subscription owing to the varying sizes of the publications and irregularity of issue. This saves customers the trouble of making numerous remittances and being on the lookout for the next issue of the series.

SAVINGS

The activities of the public documents office are of such character that it is difficult to measure savings in dollars and cents. The detail instant to the routing of mail is constantly being studied with the idea of accomplishing results with the least effort and the fact that we have been able to handle the increase without a corresponding increase in force shows that we have met with some success. As an illustration, I might mention the change made in the handling of subscription orders for the Postal Guide. It was the practice for some years, where an order called for a subscription to the supplements and also the Guide, to have the stencil cut for the supplements and write the label for sending the Guide when it was ready for distribution. We now, however, print our label for sending the Guide at the time it is cut for the subscription list, thereby saving the typing of more than 20,000 franks.

Considerable thought is given to the character of wrapper or envelope to be used in mailing out all orders, and the fact that this year we will be able to turn back at least $5,000 from our general expense account allowed for this class of material is the result of such scrutiny, but a large percentage of this amount is due to the fact that we have used large quantities of envelopes discarded by the departments, which we have overprinted for our work.

ELIMINATION OF WASTE

The Director of the Budget, at the last meeting of the business organizations of the Government, said: "We are spending too much of the taxpayers' money in helping to fill the wastebaskets of the Nation." This is not a new discovery, but a subject upon which volumes have been written. When one considers that millions of publications are destroyed annually, he must realize that something is wrong with the present methods.

The American people have been kept better informed as to the activities of their Government than are the people of any other nation of the world. This has been done through the free distribution of public documents, but the distribution has been made at an enormous expense and has been accompanied by tremendous waste. The remedy lies in the reduction of free distribution, the adoption of a sales policy, and the centering of the control of distribution under one office.

As the Public Printer, Mr. George H. Carter, stated:

> Now that the public has been so well advised as to the governmental affairs, we believe that they should join in the necessary reduction of Government expenditures by paying for such publications as may be of benefit or interest, thereby placing the public printing upon a substantial business basis.

The departments may never be willing to entirely relinquish control of the distribution of their publications, but they should make a careful study in advance of printing to determine the number of copies of each publication required for limited free distribution.

The Director of the Budget has recommended in Circular 75 that departments print for free distribution only sufficient copies for their regular mailing lists, which should usually be limited to the following:

(1) Collaborators and cooperators with the departments in their investigations.
(2) Organizations exchanging like courtesies.
(3) Libraries.
(4) Educational and scientific institutions.
(5) Officials of the Government.
(6) The press.

Observance of such regulations and an annual turnover to the documents division as a central office which is provided for by law would centralize the control and allow for the continuance in stock of publications for which there was a demand.

One might ask the question, "How would such a practice eliminate waste?" If at the end of a year the departments found they were surrendering thousands of publications which had been paid for from their appropriations, they would immediately arrange for the printing of smaller editions. That is just what is wanted because now, notwithstanding millions of copies are being destroyed annually, the stock of publications belonging to the departments remains around 27,000,000 copies. The storage of such vast stock is an expensive and serious problem and requires space that could be used to better advantage.

We are willing to concede there may be certain publications that should be continued on the free basis, but the exceptions should be few.

The Department of Commerce has adopted the recommendation of the Bureau of the Budget and is enthusiastic over the results. The officials of the department realize the nominal price charged does not impose a burden on anyone who is really interested in the information made available through their publications; moreover, the value of a publication may be determined to a large extent from the general demand.

A further advantage of the sales policy is that there is no limit to the number of copies that the Superintendent of Documents may print, the only requirement being a continued demand; on the contrary, the number of copies that a department can print is naturally limited by available appropriations, and it is reasonable to suppose that preference will usually be given to printing new material rather than to reprinting old material, the result being that many valuable publications are soon out of print.

If all publications, with a few possible exceptions, are on a sales basis, the confusion that now exists in the minds of the public as to where to apply for publications will be removed, and the supply can be made adequate to the demand.

DISTRIBUTION FOR DEPARTMENTS

The distribution for the departments for the last fiscal year totaled 47,700,277 copies, which was 8,523,771 more than the previous year. This increase was due almost entirely to it being campaign year, at which time there is always a much greater distribution of Farmers' Bulletins.

If the departments and Government establishments in Washington would follow the intent of the law of August 23, 1912, which centralized the mailing operations under the direction of the Public Printer, I am quite confident that many more thousands of publications would have been mailed by this office.

I am sure it was the intention of the law that there should be only one mailing equipment and one place for the mailing of publications, but unfortunately the law specified that the centralization of mailing should include only publications for public distribution and excepted orders, instructions, directions, notices, and circulars of information. Under these exceptions considerable mailing is done by the departments, which serves to destroy the saving that might be effected by having one centralized point.

STORAGE OF PUBLICATIONS

During the past year only 333,543 copies of publications have been eliminated as obsolete or excess copies from the consigned stocks of the departments, which totaled 26,896,987 copies on June 30, 1926. There is an indifference to the recommendation of the Bureau of the Budget in their Circular 75 that the departments comply with section 67 of the printing act of 1895 providing that the departments and offices of the Government annually turn over to the Superintendent of Documents copies of publications in excess of official requirements. Evidently a number of the departments consider the law obsolete, because no attention was paid to it for 25 years after its passage.

With few exceptions the departments are very generous in surrendering copies of their publications for sales purposes, but from the fact that they are not troubled with the storage problem they appear unconcerned as to whether or not they continue in stock excess or obsolete copies.

It is therefore recommended some action be taken to compel the departments and offices of the Government to make periodical examinations of stock on hand so that the Government Printing Office may be relieved of storing publications that are either obsolete or where available stock is in excess of any possible demand.

PUBLICITY

During the past year there were sold 10,962,571 copies of Government publications, for which $544,937.51 was received. There is no doubt that with proper advertising the sales would have amounted to more than a million dollars. The Government does not properly market its product. Although many millions are expended in the collection of information and the printing of publications, no funds are available for advertising.

DEPOSITORY LIBRARIES

The depository library system was inaugurated many years ago, and many changes have come with the growth and development during the last 50 years. Many of the depository libraries first designated in the different States have remained such regardless of conditions and of their ability to properly care for the publications received from the Federal Government. We have reason to believe that some are not living up to their obligations.

There has been considerable dissatisfaction expressed recently regarding the law which provides for the allotment of designated depository libraries, and I am convinced there is necessity for congressional action which will result in a more equitable distribution of these libraries throughout the States. The allotment by congressional districts, as now provided for, has its disadvantage where there is more than one important library in a congressional district, and although there may be other districts in the same State with libraries not sufficiently interested or well equipped to accept a designation, the law is not elastic enough to give to the State its quota through the designation of two libraries in the same district.

As further evidence of the defects in the present law, there are numerous libraries pleading for depository privileges although, at the same time, only 468 designations have been made out of the 667 now possible.

SELECTIVE PLAN FOR DEPOSITORY LIBRARIES

The selective plan for distributing Government publications to depository libraries was authorized by Congress so as to relieve the libraries of the burden of caring for all publications printed; also to prevent the waste of thousands of publications that the libraries were unable to find shelf room for and make available to the public.

When a library accepts designation as a depository, it assumes the obligation to render a definite service, and for that reason there should be some minimum requirement as to the number of selections. A library that desires only a few publications is not deserving of the privilege of designation as a depository.

In 1923 a report made at the Hot Springs conference of the American Library Association by a representative from our office disclosed the fact that 27 States (including Territories) would be without complete collections. This number has since been decreased to 21, but it does seem that at least one library in each State should be provided with a complete set of Government documents.

PUBLICATIONS ISSUED

Index to Monthly Catalogue, July, 1924–June, 1925 (188 octavo pages).

Twelve numbers of Monthly Catalogue, July, 1925–June, 1926 (totaling 1,101 octavo pages).

Twenty-seventh Preliminary Schedule of Volumes, Reports and Documents of the Sixty-eighth Congress, second session, December 1, 1924–March 4, 1925 (6 octavo pages).

Document Index No. 35, Sixty-eighth Congress, second session, December 1, 1924–March 4, 1925 (172 octavo pages).

Document Catalogue of the Sixty-fifth Congress, July 1, 1917–June 30, 1919, including the special session of the Senate, March 5–16, 1917 (2,706 quarto pages).

Index to Proceedings of Foreign Relations Committee, Sixty-third to Sixty-seventh Congresses (40 octavo pages).
Sixty price lists and five leaflets.

The Document Catalogue included in the above list covers the period of the United States participation in the World War, 1917–1919, and is the largest catalogue yet issued. It was more than welcomed by the librarians for the reason that it indexed all of the Government's publishing activities during the war.

The Document Index now being prepared for the Sixty-ninth Congress, first session, will index 3,438 documents and reports, which is only 411 less than were issued during the entire Sixty-eighth Congress.

PUBLICATIONS OF THE FUTURE

We realize that the libraries need bibliographical tools to help them with their document work, and we are eager for the time to come when our cataloguing force can be enlarged sufficiently to bring the Document Catalogues up to date and keep them so and also to prepare other compilations that are much needed.

List of governmental author headings.—Although each biennial Document Catalogue contains a list of the Government authors whose publications appear in that catalogue, there is need for a revised edition of the general list issued as a separate pamphlet.

Classification bulletins.—We have had many requests for a bulletin on the classification of public documents used by our office. Such a bulletin should contain the titles of all series listed in the order of their appearances in our shelf list, with an indication of the method by which each class is book numbered and an alphabetical index to class headings. We ourselves have long felt the need for such a working tool, and when office conditions permit its compilation we shall be glad to make the information available to librarians.

Checklist.—Ever since the third edition of the Checklist of United States public documents was published, we have had in mind a supplement to the Checklist and a combined index to the Checklist itself and to its supplement, but owing to the thousands of publications received since 1909 and the consequent expansion and necessary modification of the classification, many difficulties would arise in an attempt to index at the same time both old and new classifications. The longer Checklist compilation is delayed, the greater will be those difficulties. We have become convinced that the most practical solution will be to abandon the old plan and instead to compile a fourth edition of the Checklist, with a general index to that fourth edition. We believe that in the long run a fourth edition could be compiled as economically and that the results would be far more satisfactory both to ourselves and to libraries.

Early Congress papers.—Our dream of the future includes also the publication of a list of the documents classed in the Checklist as Z4, documents of the first fourteen Congresses, 1789–1817 (original prints). For historical and bibliographical reasons the remarkable material now in our possession should be prepared for publication. The list will be a wonderful contribution to the archives of the Government.

Weekly bulletin.—We have not forgotten the plan suggested some time ago for a weekly annotated bulletin announcing the more im-

portant publications. It is not possible at present to undertake its publication along the lines then recommended, but there is a possibility that we may be able to get out a weekly list showing the title and issuing office of publications that are thought to be of special interest to libraries and to the general public. Although such a list would not be as useful as a more elaborate one, it would furnish current information for the bulletin boards in the libraries and would assist in acquainting the public with new publications.

REPORT OF THE SUPERINTENDENT OF CONSTRUCTION AND MAINTENANCE

The construction and maintenance division has added substantially to the total amount of economies previously reported, particularly in the matter of savings in the power-plant operation. Several construction jobs have been carried through, and other important jobs begun. Much new machinery and equipment have been installed throughout the plant, old machinery has been overhauled, and routine operation, cleaning and maintenance have been kept up.

The value of the work done by the various shops in the construction and maintenance division, exclusive of routine maintenance, totaled $118,476.14.

FLOOR SPACE AND BUILDING MAINTENANCE

The floor space on June 30, 1926, totaled 727,918 square feet, exclusive of 14,590 square feet of space occupied in the Congressional Library and the United States Capitol. The cost of building maintenance for the year was $75,799.10 for labor and $13,124.54 for materials, totaling $88,923.64, which makes the maintenance unit cost 12.21 cents per square foot as compared with 12.19 cents the preceding year.

The total cost of operation and maintenance, including the operating expense of the power section, the sanitary section, building maintenance, electricity and steam purchased, totaled $321,415.34, or 44.1 cents per square foot, as compared with $334,911.48, or 46.3 cents per square foot for the preceding year. As 56 per cent of the steam and electricity purchased are for manufacturing purposes and not for heating, lighting, ventilation, etc., a deduction of this percentage from the power section's expense, including steam and electricity purchased, reduces the total cost for building maintenance and operation to $245,700.81, or 33.6 cents per square foot, as compared with 35 cents for the preceding year.

Floor space has been added during the year as follows: Erecting a locker balcony in the hallway on the seventh floor, north wing, 411 square feet; a similar balcony and floor over part of a stairwell, seventh floor, south wing, 523 square feet; roofing over areaway over blacksmith shop and flooring-in at the second and third floors, 846 square feet. These additions, together with those previously reported, make a total of 84,133 square feet of floor space added during the past six years.

A skylight or glass roof was erected over the western end of Jackson Alley extending 168 feet from our west property line north of the alley. This roof covers all of the unloading platforms in the

alley, thus enabling incoming paper stock and outgoing waste paper to be handled without danger of spoilage by rain. Trucks for which garage space is inadequate are protected by this roof at night. A 120-foot extension of this roof to cover weighing scales and further protect work and trucks in the alley is nearing completion. The alley area thus covered totals 8,533 square feet.

These additions, together with those given in previous annual reports, make a total of 84,133 square feet, or nearly two acres of floor space added by construction during the past six years.

Through appropriation by Congress there has been acquired a two-story brick building adjoining the main building, which adds a further area of 7,568 square feet.

POWER SECTION

In the last annual report it was shown that the total annual saving resulting from changing over the power plant from a somewhat obsolete steam-generating plant with steam-driven auxiliaries, air compressors, house pumps, and absorption-type refrigerating plant, to an electric substation taking steam and electricity from the Capitol power plant and replacing steam-driven units by electrically driven equipment, showed an annual saving to the Government of $65,365.20, as compared with what the same service would have cost with the old plant. In arriving at this figure consideration was given not only to comparison of direct operating expenses before and after the change over, but allowances were also made for changes in the market price of coal, changes in wage scales and water saved the District of Columbia for which the Printing Office did not pay, but which nevertheless represents a real expense to the taxpayer.

Further economies effected during the past year, including reduction of electric rate, more economical pumping of water, recirculation of cooling water, and installation of small compressors to carry light loads, add $30,046 to the total annual savings. This brings the total annual saving resulting from the change over to $95,411.20.

New equipment.—Increased economy in supplying compressed air service for elevator doors, pneumatic tube conveyors, monotype keyboards, air hoists, agitation of solution, humidity control, blow torches, gas furnaces, etc., has resulted largely from the installation of two compressors of a suitable size to carry night, Sunday, and holiday loads. Part of the increased economy is also due to the new practice of cutting off air service from parts of the building such hours each day as full service is not required. The annual savings amount to $3,490.

Increased efficiency in pumping water for house or industrial service was accomplished by building a concrete tank of 5,600 gallons capacity in the basement of the power house into which returns from ammonia condensers, after cooler, cylinder jackets of compressors, and cooling water from typesetting machines discharge. Two float switches, one located in one of the storage tanks on the roof and one located in the new basement tank, automatically control the starting and stopping of the pumps which intermittently pump water from the basement tank and the city supply mains to the roof tanks without waste of water. Pumping occurs approximately 60 times in 24

hours, each time of only a few minutes' duration. This method of operation compared with the former method of continuous pumping against partially closed float valves accounts for the saving of power. The large basement tank and piping of some returns to it which were formerly discharged to sewer, makes possible the intermittent pumping without waste of water. Tests showed the saving of water to amount to $6,910 annually and the saving of power to amount to $5,246 per year.

New electric meters have been installed on the service to the city post office and recording meters applied to all principal service maintained by the power section. These instruments give a graphic record of each service all 24 hours of the day and provide an invaluable check on the plant's operation.

OPERATING RESULTS

With a force of 13 men, one less than in the preceding year, operating results for the year as compared with the year ending June 30, 1925, are given in the following statement:

	1925	1926	Change	Per cent change
Total cost of electric current for Government Printing Office and post office	$119,357.60	$112,862.44	$6,495.16	5.43 decrease.
Labor and material substation	$10,187.26	$11,711.55	$1,524.29	15 increase.
Labor and material for all other power-plant operation	$22,525.57	$22,149.68	$377.89	1.68 decrease.
Kilowatt-hours purchased	7,204,100	7,110,950	93,150	1.30 decrease.
Cost of purchased current	$109,170.34	$101,150.89	$8,019.45	7.90 decrease.
Pounds of steam purchased	63,693,337	67,930,647	4,237,310	6.65 increase.
Cost of purchased steam	$30,515.83	$30,651.53	$135.70	0.45 increase.
Received from post office for current	$29,115.11	$30,459.14	$1,344.03	4.60 increase.
Total cost (net cost) to Government Printing Office	$143,283.89	$135,204.51	$8,079.38	5.40 decrease.
Transmission and conversion losses, kilowatt-hours	822,159	705,820	116,339	14.20 decrease.
Kilowatt-hours used by Government Printing Office	4,826,541	4,687,270	139,271	2.90 decrease.
Kilowatt-hours used by post office	1,555,400	1,719,260	163,860	10.50 decrease.
Operating efficiency, per cent	88.59	90.07	1.48	1.59 increase.
Cost of current to Government Printing Office	$90,242.49	$82,403.30	$7,839.19	8.65 decrease.
Substation load	1,224,861	1,148,625	176,236	14.40 decrease.
Gallons of city water used	202,486,650	139,830,000	62,656,650	31.20 decrease.
Value of city water used	$13,537.10	$9,346.93	$4,190.17	31 decrease.
Gallons of drinking water used	663,626	696,491	32,865	5 increase.
Pounds ice manufactured	582,500	603,100	20,600	3.54 increase.
Cubic feet of gas consumed	18,305,900	16,505,500	1,800,400	9.80 decrease.
Cost of gas consumed	$12,814.13	$11,553.85	$1,260.28	9.80 decrease.
Operating cost of electric trucks	$12,380.58	$7,145.23	$5,235.35	42.70 decrease.
Number of miles traveled	37,161	42,442	5,281	14.10 increase.
Kilowatt-hours used in charging batteries	46,612.1	38,365.5	8,246.6	17.60 decrease.
Average cost per truck-mile	$0.33310	$0.1683	$0.1648	49.50 decrease.
Average kilowatt-hour per truck-mile	1.254	0.905	0.349	28 decrease.
Average cost of current per truck-mile	$0.0235	$0.016	$0.0075	32 decrease.

SUMMARY OF OPERATING RESULTS

Changing the system of air compression, nights, Sundays, and holidays, and industrial water pumping from continuous drive to automatic start and stop of the driving electric motors only when service is required; doing with one less laborer on electric truck and battery work and charging electric truck batteries only in proportion to the miles traveled instead of daily charging has resulted in more efficient and economical operation.

Table showing savings effected

Electric current for air compression	$2,653.31
Electric current for water, brine, and other pumping	2,689.16
Electric truck operation, inspection, repairs, batteries, etc	5,235.35
Total savings as compared with previous year	10,577.82
Value of city water used	4,190.17
Total savings, including the value of city water used	14,767.99

In view of the fact that the new systems of air compression and water pumping were put into operation the latter part of the year, greater savings from them may be expected in the future than those shown for this year's operation.

MACHINE SHOP SECTION

The personnel of this section has been reduced during the year by the retirement of one blacksmith, who has not been replaced, and now numbers 39 employees.

Jobs completed during the year totaled 41,097, which includes repairs, adjustments, inspections, knife grinding, saw filing, minor new work jobs, and construction and maintenance jackets, including moving equipment and installing new machinery.

Numerous improvements have been made on a number of productive machines embodying ideas of supervisors, operators, and machinists. Among these may be mentioned the following: A reading device for use on a bookkeeping machine by means of which the corresponding line on five different daily reports is brought out clearly. The estimated saving in time by this device was $500 in the first two months of its use. A mechanical tilting board device used on three cameras in the photo-engraving section has produced an annual saving of $800. Stagger and skip-stitch attachments installed on two folding machines speeds up and simplifies production and produces an annual saving of $1,500. Changing delivery on two continuous wire-stitching machines has increased their capacity and simplified operations, making an annual saving of approximately $1,000. Five endurance paper-testing machines were conditioned at an estimated saving of $200. Four hundred felt wipers were made up at a cost of $13.65 less than purchase price. Three thousand five hundred steel galley locks were made in the shop, saving $498.75, as compared with quoted prices. A cutting attachment made up and placed on a crash-cutting machine has saved $31.50. Making instead of purchasing two racks for drum presses saved $55. A mechanical trip devised in the shop for one of the presses to take the place of an electrical trip that caused frequent shutdowns and damage to forms has effected a saving of $187.20 in a year's service. Double wax-ruling tools were designed to do in one operation what formerly required two, resulting in an annual saving of $75. Maintenance work on elevators, conveyors, tiering machines, and hoists is being kept up by fewer men without slighting the work. The saving during the year has been $889. Special attention has been given during the year to belting troubles and by proper alignment of motors with machines this trouble has been reduced 50 per

cent. The result materially reduces maintenance costs and increases production.

Much old material and salvaged parts have been used during the past year, the saving from which amounts to $2,104.66. Totaling these figures, with an allowance for the blacksmith's vacancy left unfilled, makes a saving for the year of $9,139.06.

ELECTRICAL SECTION

The electrical section's roll numbers 61, the same number carried last year. The section operates all elevators and installs and maintains all electrical equipment throughout the buildings. New installations during the past year totaled 227; repair jobs, 22,814; inspections, 5,876; adjustments, 796; and minor new work jobs, 160; totaling 29,873 jobs for the year. This is an increase of approximately 50 per cent in the number of jobs for the year.

The largest job of the year was the installation of 128 electric metal pots on the monotype casting machines, replacing the gas-heated pots. The new installation includes automatic time control by means of which any desired number of the pots are turned on for the day and night forces at the proper time to have the machines ready for the operators when they report for work. The system is so arranged that different numbers and different groups of machines may be used by the day and night forces.

Lighting changes and new installations were made necessary by the installation of new equipment. The principal jobs were for book stacks in the documents division, seventh floor and third floor; individual lights for all book-sewing machines; new cutting and packing section, old building; pipe shop; machine shop; banks and racks, monotype section; Harding Hall; and new shades for all lights in the proof room. A foot candle meter was purchased and used for checking the illumination needed for various classes of work.

Passengers carried on the elevators numbered 13,417 in one day's check, making over 4,000,000 per year.

PIPE AND SHEET-METAL SECTION

This section has 20 employees on its roll. Its work includes installation and repairs of plumbing, heating, ammonia, air, and gas lines, pneumatic tubes, pipe railing, roofs. gutters, down spouts, waste lines, and all manner of sheet-metal work.

This section contributed materially to the savings effected in the power plant operation, particularly in connection with the heating system and the new water-pumping system. Particular mention should be made of the conditioning of the heating system, making it possible to heat all parts of the buildings, including both vacuum and gravity systems, on pressures not exceeding 1¾ pounds, whereas formerly pressures as high as 7 pounds had to be carried. The saving of the approximately 400 minute streams of cooling water used on monotype and linotype machines and a few other isolated machines, amounting to approximately 42,000,000 gallons of water per year, by bringing them into a return system terminating in the

new concrete tank in the power plant, was conceived and carried out by this section.

The heating system contains approximately 256,000 feet of various sizes of pipes, ranging from one-fourth inch to 12 inches in diameter. This includes 1,284 pipe coils and radiators, with a total heating surface of 94,200 square feet.

CARPENTER AND PAINT SHOP SECTION

The section carries 36 employees, including 2 temporary painters. The work done includes repair jobs, 12,207; minor new work jobs, 890; adjustments, 4; and construction and maintenance jacket jobs, 459, making a total of 13,561 jobs during the year. Included in the jacket jobs were the following large pieces of furniture and equipment: 37 cabinets, 21 proof desks, 28 form and galley racks, 2 dictionary stands, 43 tables. For the new lift trucks 750 platforms were made and 404 platforms of various sizes for paper storage. Pressing blocks, wood furniture, pica reglets, cutting sticks, etc., totaled 20,813 pieces. Crates for shipping iron cores totaled 1,369, boxes for the presswork, binding, and stores divisions totaled 69, and postal-card shipping boxes 36,947.

Much of the lumber used in making the above was salvaged from packing boxes. From the Bureau of Engraving and Printing 13,194 packing boxes were received, which produced 200,000 board feet of lumber suitable for making postal-card boxes, at a saving of $12,200. Lumber salvaged from packing boxes received in this office and material from old tables, cabinets, partitions, etc., amounted to 138,820 board feet and produced a further material saving of $9,023.30.

Lumber purchased during the year totaled 316,278 board feet, making a total of 655,098 board feet of lumber used during the year.

Economies effected on other jobs over former methods or in comparison with outside quotations added $563.50 during the year. Spray painting equipment was purchased and used on a number of large jobs, such as painting the interior of the power plant, painting of fifth, sixth, and seventh floors of the Superintendent of Documents building after completion of extensive alterations, and painting exterior of the old building.

SANITARY SECTION

This section has 74 employees, who clean the buildings for both day and night forces and operate the laundry. More attention was given to the cleaning of windows and lights, thus contributing to the saving of electric power.

The laundry washed 30,854 pounds of rags, at a reduction in cost of 25 per cent for material and labor as compared with last year's cost. The saving on rag washing this year amounted to $3,625.35 as compared with former practice of not washing greasy rags. Towels totaling 799,912 were laundered during the year at a cost of less than one-half cent per towel.

REPORT OF THE MEDICAL AND SANITARY OFFICER

There were 12,218 treatments given to injured and sick employees of the Government Printing Office, of which 3,122 were surgical cases; 5,053 medical cases, requiring 4,043 retreatments; one death, due to myocarditis.

The surgical cases included:

Incised wounds	253
Lacerated wounds	514
Punctured wounds	122
Contused wounds	349
Abrasions	366
Sprains	275
Burns	157
Foreign bodies	427
Infections	252
Fractures	10
Dislocations	1
Amputations	1
Miscellaneous	395
Total	3,122
Number of employees receiving compensation for lost time, due to injury	16

PHYSICAL EXAMINATION

For entrance into the Government service as provided by Executive order of June 18, 1923	528
For extension of two years, as provided by retirement act of May 22, 1920	91
Reexamination for fitness for duty, transfer, and miscellaneous reasons	84
Total	703
Blood examinations	122
Number of employees sent to United States Public Health Relief Station, for diagnosis or treatment	28
Number of employees sent to Veterans' Bureau for treatment (at their request)	3

CONTAGIOUS DISEASES

Diphtheria: Cases in homes of employees[1]	9
Quarantine unsatisfactory; sent off duty	4
Scarlet fever: Cases in homes of employees[1]	13
Quarantine unsatisfactory; sent off duty	2
Measles: Cases in homes of employees	10
Official calls by medical officer to homes of employees	45

ABSENTEEISM

Number of employees absent due to illness, injury, or death in family:	
Reported in person	623
Reported by telephone	3,095
Reported by letter	61
Reported by messenger	579
Total	4,358

This shows a decrease of almost 25 per cent over last year's report.

Many old, antiquated machines have been replaced by modern machinery, which gives greater output with less laborious effort.

[1] These cases were investigated as to whether or not satisfactory quarantine was being observed.

The foremen of the various sections have taken a greater interest in the cleanliness of their rooms; more attention has been paid to ventilation; the old antiquated chairs have been replaced by up-to-date equipment; women workers who operate machines have been supplied with modern posture chairs which properly support the back while at work.

Owing to the careful safeguarding of machinery, there have been no serious or preventable accidents during the past two years.

There were 16 cases in which compensation was paid for time lost.

There has not been an employee absent for a sufficient length of time (three days) to make a claim for compensation for time lost due to wound infection during the past two years.

The Washington City post office has an emergency aid station with a nurse in charge but no night service. They have cases of such a nature that that institution is not prepared to handle. These cases have been receiving treatment at the Government Printing Office. During the last fiscal year there were 355 treatments given to employees of the Washington City post office.

Under authority of the act approved May 13, 1926 (Public No. 222), the Public Printer has discontinued the printing of such other and additional reports for the fiscal year ended June 30, 1926, as have usually been submitted to Congress concerning the business of the Governing Printing Office. The original copies of such reports will be kept on file in the office of the Public Printer for public inspection, as provided for in said act.

Respectfully submitted.

George H. Carter.

Public Printer.

STATISTICAL TABLES

(Compiled by Superintendent of Accounts and Budget Officer)

Table No. 1.—*Resources and liabilities under appropriations for fiscal year ended June 30, 1926*

RESOURCES

Appropriation for salaries, office of Public Printer		$155,480.00	
Appropriation, printing presses, Government Printing Office		122,350.00	
Appropriation for working capital	$2,400,000.00		
Transfers and payments for printing and binding for departments and bureaus and payments from other various sources to June 30	9,087,672.41		
Bills receivable July 1, 1926, for printing and binding furnished	553,966.98		
		12,041,639.39	
Appropriation for salaries, office of Superintendent of Documents		362,720.00	
Appropriation for general expenses, office of Superintendent of Documents		188,400.00	
Total resources available for work of fiscal year 1926			$12,870,589.39

LIABILITIES

Salaries, office of Public Printer:			
Disbursed to June 30	$134,199.00		
Outstanding obligations, July 1, 1926	5,991.72		
Total disbursed and outstanding obligations		$140,190.72	
Printing presses, Government Printing Office: Outstanding obligations, July 1, 1926		122,350.00	
Working capital and repayments for printing and binding:			
Disbursed to June 30	$10,203,715.79		
Outstanding obligations, July 1, 1926	1,395,297.43		
Total disbursed and outstanding obligations		11,599,013.22	
Salaries, office of Superintendent of Documents:			
Disbursed to June 30	$337,176.41		
Outstanding obligations, July 1, 1926	14,701.92		
Total disbursed and outstanding obligations		351,878.33	
General expense, office of Superintendent of Documents:			
Disbursed to June 30	$120,991.98		
Outstanding obligations, July 1, 1926	50,000.00		
Total disbursed and outstanding obligations		170,991.98	
Total disbursed to June 30	$10,796,083.18		
Total outstanding obligations, July 1, 1926	1,588,341.07		
Total disbursed and outstanding obligations			$12,384,424.25
Unobligated balance (subject to 10 per cent over or under outstanding orders)			486,165.14
			12,870,589.39

TABLE No. 2.—*Summary of financial transactions in fiscal year ended June 30, 1926, covering appropriations for fiscal years 1924, 1925, and 1926*

APPROPRIATION FOR 1924

	Resources	Disbursements	Unexpended balance July 1, 1926
Salaries, office of Public Printer: Unexpended balance July 1, 1925	$12,543.39		$12,543.39
Public printing and binding:			
Unexpended balance July 1, 1925	171,639.70		
Disbursed for material and supplies		$84,266.10	
Total	171,639.70	84,266.10	87,373.60
Salaries, office of Superintendent of Documents: Unexpended balance July 1, 1925	15,300.26		15,300.26
General expenses, office of Superintendent of Documents: Unexpended balance July 1, 1925	18,456.60		18,456.60
Increase of compensation ($240 bonus): Unexpended balance July 1, 1925	29,099.61		29,099.61
Grand total appropriation	247,039.56	84,266.10	162,773.46
Unobligated balance of 1924 appropriations on June 30, 1926			162,773.46

APPROPRIATION FOR 1925

Salaries, office of Public Printer:			
Unexpended balance July 1, 1925	$19,578.94		
Disbursed		$5,730.83	
Total	19,578.94	5,730.83	$13,848.11
Public printing and binding:			
Unexpended balance July 1, 1925	1,069,268.10		
Credited to appropriation per payments by Government establishments and private individuals for printing and binding executed and by funds from miscellaneous sources	143,836.22		
Disallowances deposited	14.25		
Disbursed for labor		194,316.34	
Disbursed for paper		625,477.20	
Disbursed for lithographing and engraving		44,188.74	
Transferred to printing and binding, 1926		26,589.15	
Disbursed for material and supplies		192,914.53	
Total	1,213,118.57	1,083,485.96	129,632.61
Salaries, office of Superintendent of Documents:			
Unexpended balance July 1, 1925	24,715.96		
Disbursed		13,938.74	
Total	24,715.96	13,938.74	10,777.22
General expenses, office of Superintendent of Documents:			
Unexpended balance July 1, 1925	48,058.20		
Disbursed		30,641.49	
Total	48,058.20	30,641.49	17,416.71
Grand total appropriation, 1925	1,305,471.67	1,133,797.02	171,674.65
Deduct for outstanding obligations			43,406.55
Unobligated balance of 1925 appropriations on June 30, 1926			128,268.10

APPROPRIATION FOR 1926

Salaries, office of Public Printer:			
Legislative act of Mar. 4, 1925	$155,480.00		
Transferred to Interior civil ledger (retirement fund)		$2,768.00	
Disbursed		131,431.00	
Total	155,480.00	134,199.00	$21,281.00
Printing presses, Government Printing Office	122,350.00		122,350.00

TABLE No. 2.—*Summary of financial transactions in fiscal year ended June 30, 1926, covering appropriations for fiscal years 1924, 1925, and 1926*—Contd.

APPROPRIATION FOR 1926—Continued

	Resources	Disbursements	Unexpended balance July 1, 1926
Public printing and binding:			
Legislative act of Mar. 4, 1925	$2,400,000.00		
Credited to appropriations per payments by Government establishments and private individuals for printing and binding executed and by funds from miscellaneous sources	9,087,662.50		
Bills receivable July 1, 1926, for printing and binding furnished	553,966.98		
Disallowances deposited	9.91		
Transferred to Interior civil ledger (retirement fund)		$171,000.00	
Disbursed for labor		6,809,939.07	
Disbursed for paper		2,375,777.36	
Disbursed for lithographing and engraving		66,213.19	
Disbursed for material and supplies		780,786.17	
Total	12,041,639.39	10,203,715.79	$1,837,923.60
Salaries, office of Superintendent of Documents:			
Legislative act of Mar. 4, 1925	362,720.00		
Transferred to Interior civil ledger (retirement fund)		8,075.00	
Disbursed		329,101.41	
Total	362,720.00	337,176.41	25,543.59
General expenses, office of Superintendent of Documents:			
Legislative act of Mar. 4, 1925	188,400.00		
Disbursed		120,991.98	
Total	188,400.00	120,991.98	67,408.02
Grand total appropriation, 1926	12,870,589.39	10,796,083.18	2,074,506.21
Deduct for outstanding obligations			1,588,341.07
Unobligated balance of 1926 appropriations on June 30, 1926			486,165.14
Total unobligated balances (subject to change by 10 per cent over or under on outstanding obligations):			
1924			162,773.46
1925			128,268.10
1926			486,165.14
Total			777,206.70

RECAPITULATION—ALL APPROPRIATIONS

Total paid for labor during fiscal year	[1] $7,175,255.41
Total paid for material and supplies	1,084,555.95
Total paid for lithographing and engraving	110,401.93
Total paid for paper	3,001,254.56
Total paid for printing and binding	11,371,467.85
Total paid for salaries, office of the Public Printer	[2] 139,929.83
Total paid for salaries, office of Superintendent of Documents	[3] 351,115.15
Total paid for expenses, office of Superintendent of Documents	151,633.47
Grand total	12,014,146.30

[1] Includes amount paid to retirement fund	$171,000
[2] Includes amount paid to retirement fund	2,768
[3] Includes amount paid to retirement fund	8,075
Total paid to retirement fund	181,843

TABLE No. 3.—*Moneys received during fiscal year 1926, the source, and Treasury deposit*

1925		
Deposited to the credit of appropriation for public printing and binding:		
Deposited for printing for departments and bureaus	$143,011.51	
Deposited for miscellaneous printing	776.72	
Refunds	47.99	
Auditor's disallowance	14.25	
		$143,850.47
Less transfer to printing and binding, 1926		26,589.15
Total		117,261.32
1926		
Deposited to the credit of appropriation for public printing and binding:		
Deposited for printing for departments and bureaus	$8,966,700.06	
Deposited for miscellaneous printing	86,420.16	
Refunds	36.95	
Repairs to truck	25.00	
Auditor's disallowance	9.91	
Expense incurred in making sales of waste paper, etc	7,891.18	
Transferred for printing and binding, 1925	26,589.15	
		9,087,672.41
Total		9,204,933.73
Deposited to the credit of miscellaneous receipts:		
Sale of waste paper	$53,925.50	
Sale of waste wood	1,419.25	
Sale of waste metal	4,537.02	
Sale of condemned material, machinery, etc	1,148.14	
Sale of leather scraps	30.35	
Surplus receipts from sales of documents	326,606.79	
		387,667.05
Total		9,592,600.78

TABLE No. 4.—*Production of principal items entering into printing and binding in fiscal years 1924, 1925, and 1926*

Item	1924	1925	1926
Main office and Congressional Library branch:			
Total charges for printing and binding—dollars	9,279,921.37	11,532,954.66	[1] 12,599,074.87
Jackets written—number	54,946	52,731	54,074
Estimates written—do	45,562	45,830	45,309
Bills computed—do	63,986	66,000	67,991
Total ems set—do	2,044,664,900	2,128,394,700	2,158,890,100
Time work in composing sections—hours	276,204	274,609	257,288
Electrotypes and stereotypes—square inches	10,641,184	10,447,231	10,948,121
Postal cards printed—number	1,253,073,180	1,595,376,890	1,596,862,880
Money-order books shipped—do	948,460	1,102,503	1,100,827
Forms sent to press—do	151,386	145,005	160,345
Actual impressions—do	480,293,692	471,384,300	465,549,492
Chargeable impressions—do	2,051,135,651	2,129,585,506	2,056,808,214
Sheets folded by machine—do	242,954,732	235,489,426	221,987,941
Signatures gathered by machine—do	148,237,041	139,940,616	130,285,798
Tips made by machine—do	8,943,186	7,217,929	9,535,440
Copies wire stitched—do	52,261,582	46,426,889	47,442,436
Copies paper covered—do	6,195,993	4,583,788	5,367,364
Books and pamphlets trimmed—do	58,187,509	56,726,117	56,392,663
Books rounded and backed—do	1,336,066	1,192,311	1,121,799
Books marbled and edged—do	188,675	150,359	184,385
Stamping impressions—do	2,714,567	2,742,491	2,573,041
Books cased in—do	1,371,196	1,257,079	1,272,999
Indexes cut—do	131,419	140,311	129,872
Sheets passed through ruling machine—do	24,136,850	21,096,848	21,657,309
Signatures sewed—do	79,653,610	83,821,611	71,977,215
Copies punched or drilled—do	79,323,823	102,005,765	100,661,589
Sheets or lines perforated—do	8,547,095	6,582,474	7,569,351
Tablets made—do	3,081,257	2,850,376	2,903,111
Miscellaneous rebindings, etc—do	80,259	93,295	92,538

[1] Includes $800,000 estimated labor and material expended on uncompleted jobs.

TABLE 5.—*Charges for work executed for Congress, departments, and independent Government establishments during the fiscal year ended June 30, 1926*

Congress	$2,157,460.06
Work ordered by Members of Congress:	
Miscellaneous charges	1,042.93
Documents, reports, bills, etc	11,127.90
Speeches	80,922.65
Private orders for electrotypes	739.37
Superintendent of Documents	509,064.64
State	173,123.48
Treasury	991,625.03
War	652,264.19
Navy	561,778.23
Interior	206,203.13
Geological Survey	87,289.55
Smithsonian Institution	99,321.11
Justice	182,447.34
Post Office	2,149,321.94
Agriculture	785,132.86
Commerce	688,374.55
Patent Office	1,147,571.55
Labor	241,371.18
Library of Congress	286,543.12
White House	3,897.67
Pan American Union	35,968.34
Supreme Court:	
District of Columbia	4,174.77
United States	26,003.34
Court of Claims	29,374.56
Interstate Commerce Commission	172,885.25
Civil Service Commission	57,952.29
Geographic Board	469.08
General Accounting Office	26,955.75
Alien Property Custodian	6,605.30
Bureau of the Budget	24,261.97
Commissioners, District of Columbia	12,626.29
Employees' Compensation Commission	4,329.58
Federal Reserve Board	37,312.63
Federal Board for Vocational Education	7,273.67
Federal Trade Commission	21,583.58
National Advisory Committee for Aeronautics	11,556.05
Panama Canal	16,758.49
Railroad Administration	3,627.72
Railroad Labor Board	19,731.29
Shipping Board	63,147.04
Tariff Commission	17,494.17
Veterans' Bureau	152,969.39
War Finance Corporation	1,968.05
Office of Public Buildings and Public Parks	4,631.43
Arlington Memorial Bridge Commission	762.87
American Battle Monuments Commission	1,065.50
Bureau of Efficiency	350.49
Commission of Fine Arts	166.72
Federal Power Commission	2,099.40
National Forest Reservation Commission	494.41
National Home for Disabled Volunteer Soldiers	17.85
Rock Creek and Potomac Parkway Commission	20.32
Special counsel, oil leases, etc	376.52
Lincoln Memorial Commission	3,600.00
Board of Tax Appeals	13,634.51
John Ericsson Memorial Commission	141.89
National Capital Park and Planning Commission	39.44
National Sesquicentennial Exhibition	22.44
Total	[1] 11,799,074.87

[1] This amount includes $447,468.43 charge for blank paper.

TABLE NO. 6.—*Operating expense for the fiscal year ended June 30, 1926*

NONPRODUCTIVE DIVISIONS

[This expense absorbed by productive divisions]

Division, office, or section	Salaries and wages, leave of absence and holiday pay	Material and supplies for maintenance and operation	Repairs and new work	Charges for miscellaneous work by other sections	Machinery and equipment issued	Miscellaneous and general expense including gas	Total	Credits by work for other sections	Actual overhead expense
Public Printer	$6,000.00	$2.50	$76.19			$3,797.74	$9,876.43		$9,876.43
Deputy Public Printer	7,744.86	172.81	28.67			60.00	8,006.34	$211.16	7,795.18
Chief clerk (including switchboard)	31,448.49	234.55	118.51			3,394.96	35,196.51	204.00	34,992.51
Disbursing clerk	7,030.78	318.68	110.39			2.33	7,462.18		7,462.18
Congressional Record clerk	11,586.11	1.26					11,587.37		11,587.37
Purchase	37,375.05	168.35	218.07			26.95	37,788.42		37,788.42
Guard force	52,875.87	24.84	153.52				53,054.23		53,054.23
Emergency hospital	13,074.32	229.82	353.98		$135.35	7.60	13,801.07		13,801.07
Stores	30,285.44	682.61	1,409.31		845.37	82.20	33,304.93	5.00	33,299.93
Details, not chargeable	10,060.84						10,060.84		10,060.84
Accounts	166,622.46	436.75	1,228.69		2,600.29	250.02	171,138.21		171,138.21
Production manager and planning	87,803.91	887.53	1,559.19		1,132.30	217.99	91,600.92		91,600.92
Superintendent of printing	50,823.86	446.54	313.47		4.42	1.25	51,589.54	22,482.68	29,106.86
Superintendent of binding	11,579.78	63.86	59.24	$17.60	47.50	1.25	11,769.23		11,769.23
Superintendent of construction and maintenance and buildings	45,185.52	2,014.22	118,784.55	154.60	6,702.37	9,235.50	182,076.76	29,462.94	152,613.82
Electrical	112,294.19	10,818.28	190.20		3,001.06	69.67	126,373.40	62,552.62	63,820.78
Pipe and sheet metal	46,358.31	7,890.99	392.51		1,794.65	63.80	56,500.26	45,078.03	11,422.23
Power plant	31,030.62	1,022.90	8,699.88		19,841.66		60,595.06	6,726.50	53,868.56
Sanitary	97,287.19	7,346.67	1,195.60		57.79		105,887.25	10,084.63	95,802.62
Machine	99,240.22	6,675.41	1,487.53	3,321.74	6,225.54	74.70	117,025.14	92,402.68	24,622.46
Carpenter and paint	77,406.24	29,883.02	1,472.46		589.27	827.35	110,178.34	90,898.82	19,279.52
Plate vault	23,404.03	136.99	164.51	828.15			24,533.68		24,533.68
Delivery and garage	73,450.09	2,751.60	15,113.84	2.10	3,851.60	241.61	95,410.84	1,731.96	93,678.88
Testing	21,321.53	922.71	1,502.31	357.33	2,272.25	118.16	26,494.29	215.74	26,278.55
Capitol power plant						122,459.04	122,459.04	51,703.87	70,755.17
Productive machinery and equipment					277,315.57		277,315.57		277,315.57
Miscellaneous			1,396.17	3,529.94		357.52	5,283.63		5,283.63
Total	1,151,289.71	73,132.89	156,028.79	8,211.46	326,416.99	141,289.64	1,856,369.48	413,760.63	1,442,608.85
Leave and holiday pay—productive divisions									836,919.49
Grand total									2,279,528.34

PRODUCTIVE DIVISIONS

[Nonproductive divisions' expense included in third figure column]

Division, office, or section	Salaries, wages, material, and supplies for maintenance and operation	Overhead charges on salaries, wages, material and supplies		Repairs, new work, miscellaneous charges, gas, and power	Stock issued, illustrations, ordered, and outside purchases vouchered	Reconciliations between issues, orders, and same items computed	Total	Credits by work for other sections	Total productive divisions' expense
		Per cent	Amount						
Job	$180,508.57	41.9714	$75,762.15	$83,873.03			$340,143.75	$25,535.38	$314,608.37
Patents	152,605.74	34.4229	52,531.45	177,097.59			382,234.78	51,130.32	331,104.46
Linotype	525,653.61	39.8385	209,412.74	759,658.21			1,494,724.56	116,008.66	1,378,715.90
Monotype	771,752.32	42.0704	324,679.74	931,333.10			2,027,765.16	326,375.52	1,701,389.64
Hand	233,164.70	40.7554	95,027.24	58,000.20			386,192.14	261,219.36	124,972.78
Proof	705,622.66	38.9541	274,869.33	38,977.46			1,019,469.45	1,019,469.45	
Apprentice	167,948.46	48.0526	80,703.75	27,448.81			[1] 276,101.02	186,888.84	[2] 89,212.18
Platemaking	194,786.79	45.4663	88,562.50	37,539.68			320,888.97	105,447.19	215,441.78
Photo-engraving	61,931.32	24.4209	15,124.21	13,619.74			90,675.27	346.16	90,329.11
Press	850,211.23	42.5264	361,564.30	152,704.02	$371.25		1,364,850.80	84,001.77	1,280,849.03
Pamphlet binding	455,176.57	41.0443	186,824.09	96,353.27	8,623.36		746,977.29	1,826.97	745,150.32
Ruling and sewing	258,698.65	43.1099	111,524.76	11,715.83	54,380.80		436,320.04	7,163.29	429,156.75
Forwarding and finishing	457,581.89	44.0368	201,504.83	30,945.03	124,838.15		814,869.90	13,031.48	801,838.42
Money order	39,878.95	38.1267	15,204.54	6,168.56	83,811.72		145,063.77	375.92	144,687.85
Postal card	120,456.47	33.2200	40,015.65	159,286.46	561,924.62		881,683.20		881,683.20
Library printing branch	45,882.34	32.6191	14,966.41	11,003.12	20,937.51		92,789.38	4,734.89	88,054.49
Library binding branch	98,080.63	33.4854	32,842.71	1,028.44	7,894.26		139,846.04	8,785.25	131,060.79
Cutting and packing	74,715.03	45.9841	34,357.05	7,958.07	419,848.36	−$6,540.33	530,338.18	6.13	530,332.05
Metal	57,140.48	20.0396	11,450.78	4,564.53			73,155.79	73,155.79	
Details	21,359.54	12.6303	2,697.78	31.77	109.21		24,198.30		24,198.30
Stores	107,458.47	40.3431	43,352.11	2,814.82			153,625.40	3.36	153,622.04
Ink	27,029.69	24.2334	6,550.22	1,096.16			34,676.07	34,614.32	61.75
Paper stock—Press division					1,841,000.26	+57,403.14	1,898,403.40		1,898,403.40
Illustrations					92,734.91	−3,407.85	89,327.06		89,327.06
Outside purchases					6,265.08	+2,810.84	9,075.92		9,075.92
Work for stock returned to stores				40,491.84		−40,491.84			
Light and power, city post office				28,601.32			28,601.32		28,601.32
Superintendent of Documents—other than printing and binding	13,035.05			22,999.80			36,034.85		36,034.85
Total	5,620,679.16	40.6765	2,279,528.34	2,705,310.86	3,222,739.49	+9,773.96	13,838,031.81	2,320,120.05	11,517,911.76

[1] Grand total expense of all apprentices.

[2] Expense of apprentice section, eliminating details to other divisions.

TABLE 7.—*Classified statement of printing and binding executed for Congress, the executive and judicial departments and independent Government establishments, and total charges for principal items thereof during fiscal year ended June 30, 1926*

Kind or description of work	Number of copies	Number of type pages	Publications bound	Charge for composing-room work except authors' alterations	Charge for authors' alterations	Charge for electrotyping or stereotyping	Charge for pressroom work	Charge for bindery work	Charge for illustrations or engravings	Charge for paper	Charge for rush and overtime work	Charge for miscellaneous and contract items	Total charge
Letterheads, noteheads, and envelopes	136,434,471			$20,832.55	$149.53	$1,668.85	$72,240.88	$16,451.70	$10.56	$144,188.02	$74.41	$446.06	$256,062.56
Embossed letterheads, noteheads, and envelopes	575,901			22.07		.66	2,707.78	228.08		2,292.03	12.89	89.00	5,352.51
Blanks, notices, schedules, cards, etc	3,109,768,005			340,913.87	18,362.58	30,111.54	407,633.83	333,578.76	11,440.34	1,598,300.96	5,465.47	322,490.01	3,068,297.36
Blank books with patent backs, etc	3,485			3,659.74	73.78	261.47	1,997.16	32,141.10		8,694.37		.40	46,828.02
Blank books without patent backs	2,636,595			18,132.20	524.14	4,142.55	60,750.64	280,427.75	514.36	108,889.38	26.99	91.62	473,499.63
Binding newspapers, documents, reports, etc	77,537							302,038.06					302,038.06
Loose-leaf and other patent binders, etc	1,645							3,632.26		2.28		3,967.79	7,602.33
Publications smaller than octavo	2,297,524	19,189	45,448	35,456.34	2,914.80	2,567.39	7,427.99	22,064.97	1,483.33	9,824.49		51.70	81,791.01
Octavo publications	70,998,978	661,140	870,745	1,375,673.06	136,609.49	120,417.05	309,577.46	652,742.72	93,736.86	461,767.08	93,358.59	15.79	3,243,898.10
Royal octavo publications	2,452,975	55,612	29,775	154,419.69	21,687.46	8,749.19	32,433.36	44,311.55	15,807.44	32,748.31	5,813.97	6.64	315,977.61
Quarto publications	5,737,799	143,030	29,634	350,383.58	23,518.57	20,972.54	48,606.88	72,572.17	20,354.73	67,049.43	9,681.60	.50	613,140.00
Miscellaneous publications	10,122,338	764,273	253,464	19,424.58	1,103.76	1,306.34	72,956.20	188,211.58	11,498.96	121,213.60	423.37	48,363.00	464,501.39
General miscellaneous charges				31,553.34	5,515.94	13,676.92	7,999.71	60,299.75	10,500.64	80,430.30	3,073.40	284,993.71	498,043.71
Congressional Record for year	4,225,000	13,883		176,126.33	720.91	30,312.74	44,549.63	96,669.40	46.16	58,496.40	70,930.96		477,852.53
Bills, resolutions, and amendments (as introduced, and reprints on requisitions)	11,561,210	99,412	30	228,927.43	494.49		89,159.06	20,579.60		13,778.21	84,680.94		437,619.73
Specifications of patents, trade-marks, etc	6,488,265	175,021		722,021.07	10,945.16	20.16	76,599.09	4,397.04	5.54	15,340.77			829,328.83
Official Gazette, Patent Office	290,836	15,406		145,607.01	147.76	1.90	22,974.46	19,153.40	16,369.13	25,519.40			229,773.06
Blank paper										413,308.03		34,160.40	447,468.43
Total	3,363,672,564	1,946,966	1,229,096	3,623,152.86	222,768.37	234,209.30	1,257,614.13	2,149,499.89	181,768.05	3,161,843.06	273,542.59	694,676.62	11,799,074.87

TABLE 8.—*Inventory of quantity and cost of paper and envelopes, material and supplies, and machinery and equipment on hand June 30, 1926*

Description	Sheets	Pounds	Cost
Paper and envelopes:			
Machine-finished book	36,624,000		$107,287.12
Do		1,262,200	71,528.20
Coated book	784,000		16,284.29
United States money order writing		134,155	16,148.16
Safety writing	146,000		1,676.99
Sulphite writing	9,032,000		43,140.00
Do		203,436	13,329.54
Map and bond	30,499,000		298,881.40
Do		9,975	1,963.25
Ledger	3,473,000		87,090.81
Cover	1,133,000		11,178.70
Manila	5,702,000		35,264.22
Do		146,000	6,978.88
Manila board		158,000	9,987.90
Do	144,000		3,351.89
Cardboard	58,000		1,921.24
Bristol board	1,210,000		21,421.91
Do		199,000	3,744.90
Miscellaneous	880,000		56,232.03
Do		17,000	1,043.60
Binder's board		517,800	18,468.20
Envelopes			16,904.63
Total, paper and envelopes			843,827.86
Other material and supplies:			
Miscellaneous supplies			198,579.49
Book cloth			21,062.46
Ink ingredients			7,538.95
Leather			9,596.85
Ink (90 per cent made in Government Printing Office)			3,346.36
Total, material and supplies			240,124.11
Total, material and supplies, paper and envelopes			1,083,951.97
Machinery and equipment:			
Machinery			3,476,734.70
Equipment			362,807.87
Total, machinery and equipment			3,839,542.57
Grand total			4,923,494.54

TABLE 9.—*Publications, including annual reports and documents, printed upon requisition during the fiscal year ended June 30, 1926, for departments and independent Government establishments (Congress not included)*

	Copies
State	369, 504
Treasury	3, 734, 915
War	11, 550, 695
Navy	1, 805, 789
Interior	1, 965, 851
Justice	26, 667
Post Office	1, 851, 212
Agriculture	27, 955, 223
Commerce	6, 190, 862
Labor	2, 176, 209
Smithsonian Institution	161, 838
Library of Congress	135, 085
White House	69, 737
Pan American Union	246, 465
Supreme Court:	
District of Columbia	1, 674
United States	28, 885
Court of Claims	2, 348
Bureau of Efficiency	2, 018
Federal Power Commission	3, 014
Interstate Commerce Commission	1, 801, 726
Civil Service Commission	106, 187
Geographic Board	8, 100
General Accounting Office	10, 777
Alien Property Custodian	4, 571
Commissioners, District of Columbia	16, 829
Employees' Compensation Commission	9, 104
Veterans' Bureau	945, 319
Federal Board for Vocational Education	48, 628
Federal Reserve Board	417, 010
Federal Trade Commission	86, 231
National Advisory Committee for Aeronautics	18, 407
Panama Canal	2, 230
Railroad Administration	1, 437
Shipping Board	363, 724
Tariff Commission	20, 017
Railroad Labor Board	12, 220
War Finance Corporation	2, 000
Commission of Fine Arts	1
Bureau of the Budget	39, 241
Miscellaneous	20, 036
Total	59, 251, 786

TABLE No. 10.— *Condemned machinery, material, etc., sold in fiscal year ended June 30, 1926*

Sale of condemned material, machinery, etc	$1, 148. 14
Sale of waste wood	1, 419. 25
Sale of waste metal	4, 537. 02
Sale of waste paper	53, 925. 50
Sale of leather scraps	30. 35
Total	61, 060. 26

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